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In This Issue

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The Week at a Glance

N. Y. CENTRAL RESEARCH: In its preliminary annual report to stockholders, the New York Central has announced the creation of a "research council," composed of specially-qualified officers—this body to direct a considerable number of research investigations into such subjects as post-war competitive prospects from other agencies of transportation, and means whereby the Central may improve its service, equipment and methods. The announcement also mentions the similar program on an industry-wide basis, now engaged in by the A.A.R. If there is any better news for this industry than such announcements as this, what could it be?

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NO FREE R.R. LAB: The war is providing an enormous laboratory, gratis, for air transportation—quite likely giving it a concentration of technological experience which a century of peace could not equal. This progress is not confined to plane and engine design—but extends also to operating methods, fuel efficiency, meteorology, personnel practices and the development of airports. Whatever "inherent" advantages aviation possesses—and we may be sure they are many—there is no doubt that they will be largely brought into play, as a result of the war experience. What assurance is there that "inherent" advantages of railroading will be similarly located and given actuality? The obvious answer is that they will not be, except by an exhaustive and *intentional* search for them. By such inquiry it might very well develop that many war discoveries in aviation can profitably be adapted also to other forms of transportation.

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NON-OPS WAGES: In an editorial in this issue, hourly and monthly wages of typical non-operating jobs are shown for November, 1942—compared with November of 1939 and 1929, and noteworthy percentage increases are revealed, especially for the lower-paid jobs requiring a minimum of skill. It is suggested that, employees having already fared so handsomely, it might be to *their* advantage to have increased railroad earnings used, for the time being, to restore sadly-dilapidated railroad credit. Investment capital is needed to create, and to maintain, employment; and a continuing supply of capital cannot be obtained by the railroads at the starvation "wage" railroad investment has *averaged* for the past dozen years.

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EQUITIES DISCARDED: Despite all the talk about 110 billions or more as post-war national income (which, if achieved, should bring relative prosperity to all railroads) the Supreme Court has sided with the I. C. C. in the latter's pessimistic views of the railways' future prospects. The Commission believes present earnings to be a windfall and that conditions of the 'Thirties are, rather, what the carriers must look forward to in future. Consequently, in reorganization cases, they are tossing out the present equity-holders without a shilling—and the Supreme Court says to them: Go to it, boys. The court decision is reviewed in an article herein.

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STIFLING IMPROVEMENT: Putting superfluous highly-paid deadheads into trailing units of Diesel locomotives is simply a device whereby the economy of this new tool may be wiped out by arbitrary restrictions on its use—such is the carriers' answer to the economy-stifling demands of the engine unions at the emergency board hearing on this case, reported herein.

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AN A.R.E.A. ISSUE: While covering the usual panorama of railway news and features, this enlarged issue is devoted especially to providing a "convention in print" for the American Railway Engineering Association—which, because of the war, refrained from holding its usual annual gathering in the flesh. Reports of the president, secretary and committees are presented — followed by an "exhibit in print," of new and improved devices, all of which would probably have been on display had an actual convention been held.

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FOR THE NON-ENGINEER: An epitome of current railway engineering progress is available herein in the abstracted A.R.E.A. committee reports—which hold the interest, not only of the professional, but of the non-engineering layman (such as your reporter) also. The few highly-technical reports, unintelligible to the unlearned, no doubt convey wisdom to the initiated—but most of them do not go into questions beyond the proper range of curiosity of any alert railroader. For example, take the reports on economics of labor and operation (pages 565 and 566) or the 17 practical suggestions (page 558) for passenger terminal improvement—matters which are of as much interest to executives, operating and traffic officers as they are to engineers.

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MR. RODGERS REPLIES: After some delay, Ted Rodgers of the Trucking Association has got around to replying to Mr. Pelley's letter which raised a question of veracity concerning the Trucking Association's advertisement which claimed that "with one-twentieth of railroad capacity, trucks haul one-fourth the load in less than half the time." In the news pages herein Mr. Rodgers' explanation of his higher mathematics is reported, and the reader may judge for himself therefrom as to the degree of statistical candor which the Trucking Association deems adequate for its statements on public policy.

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PERFECT SHIPPING: The April campaign for improved transportation—on both the carrier and customer sides of the job—was initiated in Chicago this week at a luncheon where principal speakers were E. A. Jack (in charge of the campaign) and Major-General Gross, commanding T. C. Further details of this highly-desirable program are recounted in a short article in this issue.

TRAFFIC ESTIMATE: M. J. Gormley, addressing the Pacific Coast Advisory Board on March 19, predicted an increase of 10 per cent in freight traffic and 25 per cent in passenger movement for the railroads. He reiterated the carriers' needs for additional equipment, in order to assume this burden with assurance of dealing with it satisfactorily.

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SHIPPERS CORNER BERTHS?: Big shippers are tying up too large a share of available Pullman space—making advance purchases to meet "conjectural demands," and turning the unused space in at the last minute, thus putting Pullman transportation for other customers on a catch-as-catch-can basis. Such is the contention of ODT's Traffic Director McCarthy, who observes that the condition is difficult for the railroads to correct because of "freight traffic pressure."

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NEED FOR REEFERS: Because of the rationing of canned fruits and vegetables, the fresh articles will be in unprecedented demand—which will put a heavy strain on the supply of refrigerator cars. Ventilated box cars are already being used more extensively for the movement of citrus out of Florida. Warren Kendall and the O. D. T. have both issued statements touching on the situation—these being reviewed in the news pages herein.

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FEATHERBEDDERS' FRIEND: California's Senator Downey has risen in his dignity to proclaim as "almost wholly false" the suggestion that railway working rules are wasting manpower. He believes that recent magazine and newspaper articles which convey this impression are "a treasonable offense." But note that little word "almost" in the Senator's statement. By it he concedes *some* labor wastage from these rules. If they really affect as few employees as he contends, then obviously, abrogating them could do the sirs and brothers little harm—and would show the critics up. If the featherbed rules are of such small use to their beneficiaries, why do they insist on keeping them?

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McCARTHY'S MISGIVINGS: ODT's Traffic Movement Director Henry McCarthy is not comfortable about the car supply—so he made known to the Shippers' Advisory Board at Boston this week. Time-in-Transit has increased—in some cases as much as 50 per cent. General Order No. 1 provided extra cars last year —but this has been offset to some degree by greater delay in handling the heavier-laden cars; and Order No. 18 was designed to conserve motive power rather than cars. The "static bank" of cars held at ports to provide a reservoir for ship loading is another factor operating to diminish the car supply. Mr. McCarthy went on to say that 87 per cent of carload traffic is routed by industrial traffic managers—and that routing is an all-important factor in car utilization. Some routes are invariably slow, and traffic managers should avoid these.

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WITH

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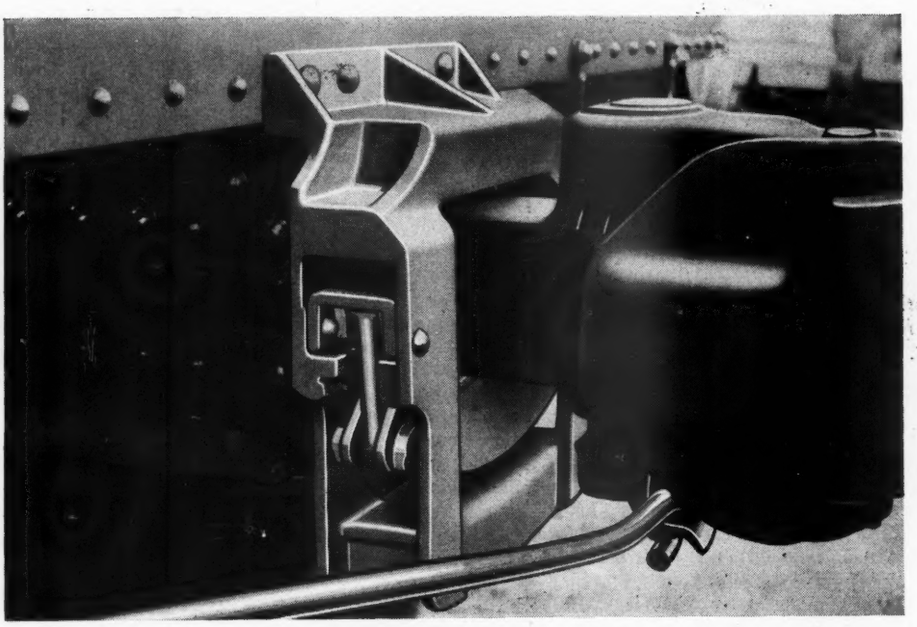

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Efficiency FOR VICTORY

Totalitarian Utopia

Last week's report of President Roosevelt's "planning arm," the National Resources Planning Board, calling for a post-war economy dictated by the Washington bureaucracy, has encountered a deservedly hostile reception. Most publicists worthy of attention have condemned the thing out of hand, as a perversion of everything America has stood for up to now. As far as we have seen, its only endorsers have been Philip Murray, William Green and Senator Pepper—although there are others of similar stripe with whom the scheme doubtless also finds favor.

The American understanding and conscience is slowly—but, so it seems, inexorably—awakening to the identification of freedom and prosperity with private enterprise. Government cannot create anything. Government is nothing but organized coercion—an expedient necessary for defense against foreign enemies and domestic criminals, but dangerous in exact proportion as it undertakes further functions.

When government performs *only* its essential elementary functions, it makes political and economic liberty possible—because no man can be free when subject to depredation by foreign marauders and domestic criminals. But no government is content with these elementary functions. Invariably it attempts to invade, and thus to restrict, the sphere of freedom of its citizens.

It was in full knowledge of this historical tendency afflicting all governments that the founders of this republic sought to establish a government of *limited powers.* These limitations have been gradually eroded by greed, ignorance and demagogy until they are on the point of complete disappearance—but understanding opposition to this disastrous trend is now belatedly awakening, and gives every indication that it means business.

By presenting such a wholesale scheme for government control of the economic life of its citizens "from the cradle to the grave," the National Resources Planning Board has, quite unintentionally, done the nation a service. Now the goal of the conspiracies of the Washington bureaucrats is out in the open. It will hereafter be easier for opponents of totalitarianism to fight it—since they no longer have the task, first, of convincing skeptics that the pious-spoken New Dealers actually intend state absolutism. Of this there can now exist no doubt, because the bureaucrats have obligingly described in intimate detail the Hitlerian Utopia they propose. The plan is complete—except for the slight item of where the money is to come from.

The "ideology" of the National Resources Planning Board was implicit in its report on transportation (reviewed in our November 7, 1942, issue and since then subject to editorial comment on several occasions). The business community, at large, was not much disturbed about this transportation report—proposing government ownership of the railroads, in order to give the bureaucrats "security" in their jobs and another place to "invest" billions of public money. Now that it is revealed that the scheme the bureaucracy intended for the railroads was merely a sample of what it proposes to do to the whole economy, it is likely that sound transportation economics may henceforth secure somewhat more interested attention than in the past from the general business community.

Tax-supported competition with the railroads is the excuse the Planning Board offers for its scheme to socialize them. If the business community desires to reject this "solution," it must show a corresponding willingness to correct by sound measures the undeniable "mixed economy" malady from which transportation is suffering.

Thirty Drops Per Minute

Twenty-five or more years ago, when the tank car was a major factor in the movement of petroleum to the refinery and its products to market, there were numerous object lessons pointing up the hazards associated with leaking tank cars. Volcanic eruptions occurred in city streets as the result of explosions caused by gasoline which had found its way into the sewers from leaking tank cars. Whole communities were the victims of catastrophes caused by carelessness or ignorance in dealing with leaks in or transferring of loads from tank cars in which defects had developed en route. The need for extreme caution in dealing with cars loaded with petroleum products cannot be too frequently emphasized today in the instructions issued to all employees who have anything to do with the movement or maintenance of this class of traffic.

But, important as caution is, there is another side to the picture now. After many years during which most carmen and inspectors have almost forgotten what a tank car looks like, the need for the utmost intensity of utilization and expedition in the movement of tank cars has suddenly become desperate. Such a situation is a difficult one to deal with, particularly by car inspectors. Those who are partially experienced or have long memories cannot be blamed if they always act on the safe side when their experience is not sufficiently broad to afford a basis for sound judgment. Others with less experience and no memory are just as likely to err in the direction of dangerous chance taking.

All of these men will find practical guidance in a circular letter issued by the Mechanical Division of the Association of American Railways on March 2 to its own members and to private tank-car owners. In order that the contents of cars in which slight leaks or seepages have developed will not be held up for transfer of loads when no appreciable hazard or loss of contents would be involved in continuing the cars to their destinations, a limit of 30 drops per minute has been established as marking the point beyond which a leak begins to be dangerous. Observance of this simple test should insure the unobstructed movement of all tank cars loaded with petroleum products which are safe to move.

The remainder of the Mechanical Division letter sets forth the precautions which must be observed to avoid the risk of catastrophe when dealing with cars in which leaks exceed the 30-drops-per-minute limit of safety. The procedures set forth are simple and it is equally as important that they be scrupulously observed as it is that cars with leaks of less than the limit be kept rolling to destination.

Non-Ops' Wages

The demand of the unions representing non-operating employees for a wage increase of 20 cents per hour is being heard in Chicago before an "emergency board." An examination of the most recent wage statistics from the Interstate Commerce Commission (those for November, 1942) shows that typical occupations among these employees are now receiving "take home" monthly wages ranging between 17 and 41 per cent above those of 1939—at the outbreak of the war in Europe—and from 30 to 55 per cent above those of 1929—the peak of pre-depression "prosperity." What these increases have been for specific occupations is shown in the table at the bottom of the page.

Demands for increases over present all-time-high wages are based, among other arguments, on present favorable railway earnings. However, in the great depression of the 'Thirties, railroad earnings declined to as low as 1¼ per cent on capital investment (from 4.81 per cent in 1929). For the entire decade, 1931-40, in no one year did railway earnings reach 3 per cent on the investment. During this period of catastrophic decline in earnings on invested capital, railroad wage rates were reduced only 10 per cent, and this modest reduction was cancelled after two years.

The present unprecedented traffic which the railroads are being called upon to carry is proof that national well-being—and, indeed, national safety—requires the maintenance of efficient railroad service. Such service cannot be assured indefinitely without reasonable compensation to capital—and capital did not receive such compensation for many years. In view of the large increases in compensation which railway employees have already received since the outbreak of the war in Europe—and the fact that railroad credit has still not been restored from the disaster of the 'Thirties—it seems the part of wisdom to use present increased earnings, insofar as possible, for the improvement of the railways' credit position (such as, for instance, the purchase by the railways of their own bonds—as many of them are now doing). Continued efficient railway serv-

Wages of Typical Important Classes of Non-Operating Employees—1942 Compared to 1939 and 1929

	Nov. 1942			Nov. 1939			Nov. 1929			"Take Home" Wages 1942	
	Avg. Hourly Earnings (Cents)	Avg. Monthly Earnings	Avg. Monthly Hours	Avg. Hourly Earnings (Cents)	Avg. Monthly Earnings	Avg. Monthly Hours	Avg. Hourly Earnings Cents	Avg. Monthly Earnings	Avg. Monthly Hours	% Increase over 1939	% Increase over 1929
Clerks (Classes B and C)	87.6	$177.33	202.5	76.3	$151.34	198.4	68.2	$134.66	197.5	17.2	31.7
Section Men	53.9	108.27	200.7	41.1	76.45	185.9	36.0	70.03	194.7	41.6	54.6
Car Repairers	96.5	203.41	210.9	83.0	164.27	198.0	78.9	156.78	198.6	23.8	29.7
Machinists	104.4	223.33	213.9	90.0	175.15	194.7	85.0	166.57	196.0	27.5	34.1
Telegraphers, Telephoners, Tower Men	87.8	199.67	227.3	75.2	170.45	226.6	69.0	153.59	222.5	17.1	30.0
Truckers	65.7	140.59	214.1	52.4	102.68	195.9	47.1	94.31	200.1	36.9	49.1

Note: Average monthly earnings and hours are derived by dividing aggregate hours (including overtime) and earnings by number of employees working at middle of the month. The resulting averages, obviously, are those for full-time employment.

ice (and jobs for railway labor) cannot be assured on the average railway earnings of the years since 1929. If railway investors cannot expect a "living wage" even in years of heavy use of their property, when—they may fairly inquire—may they expect such a "wage"? And, if there is no chance that they are ever going to receive it, why not put their funds into a more attractive investment?

Any consideration of railway wages which does not take into account the persistence of inadequate earnings on railway investment is unrealistic from the standpoint of the long-run best interest of labor itself. Employees can be temporarily overpaid at the expense of a "living wage" to investors, only at the risk of their future jobs and the solvency of pension funds.

Preserving an Ideal Relationship

It has been said frequently that the customer-purveyor relationship that exists between shippers and the railways is unique in industry, and it will bear repeating. It is based upon a mutual understanding of problems that has been gained to a large extent through the interchange of ideas and the making of acquaintanceships at the regional advisory board meetings.

The shippers, on their own account and through the activities of the advisory board vigilance committees, have co-operated whole-heartedly in improved car-handling. In contrast, the railways, in the rush and press of other business, have not always given the vigilance committees the support in the way of supplying them with information, to which their fine work entitles them. This is a matter that should be handled vigorously with local agents who, however busy they may be, should still find time to assist in the important work of these vigilance committees. No railway officer should merely assume that this is being done, for in many cases that has proved to be a false assumption and, unless he sees to it that it is done, all too frequently this important matter is neglected.

The shippers have also co-operated with the railways in promoting the heavy loading of cars. In the case of coal cars, a definitely threatening car shortage was averted by prompt remedial action on a mutual basis. As a matter of fact, the threat of a shortage of open-top cars has been so continuingly imminent that there has been little or no inclination on the part of either shippers or the railways to become complacent and oversure of themselves in this regard. The imminence of the danger has kept them very much on their toes.

Except in certain spots where the need for box cars continues acute, however, this has not been entirely true of the closed car situation. The smooth manner in which the railways, the Office of Defense Transportation and the shippers have tackled the box car problem and, so far, have solved it, has lulled certain participants in the struggle to supply adequate wartime transportation into a false sense of security. Unconsciously, some of them have adopted the attitude that everything has moved along so smoothly in this regard for well over a year that it will continue to do so for the duration. Unfortunately, this has no basis in truth, for there is no single phase of the complex and difficult business of supplying transportation for the country's expanding war production that can be overlooked for a moment.

Every railway officer is working long hours and engaged upon extremely important activities during the time he is working. Transportation officers, particularly, are finding the demands upon their time overwhelming. The matter of shipper co-operation, however, ranks so high in importance that it should be given a high priority in the distribution of all transportation officers' time. The spring meetings of the regional advisory boards are under way now. Transportation and other railway officers should not neglect them, as their attendance at such meetings is more important now than it ever was.

Save Time for Helper Locomotives

On long grades where helper locomotives are required for tonnage trains, the growth in traffic during the last year has increased not only the number of trains but also the number of locomotives required for helper service. Furthermore, where train movements are authorized by time table and train orders, the larger number of train and light engine movements has increased the interference so that it is more difficult to return the helpers to their starting points without serious delay.

Under such circumstances, one means for relieving congestion and expediting trains is to install centralized traffic control, including power switches or spring mechanisms, together with semi-automatic signals for directing train movements without the use of train orders. These facilities not only permit road trains to move as soon as a section of track is available but also facilitate the prompt return of helper locomotives.

As an example, on one C. T. C. territory completed last year, each helper locomotive now assists three or more trains up a grade in an eight-hour trick, whereas, with previous train-order operation, the delays were such that the instances were rare in which a locomotive could help more than two trains in that period. By thus using the helper locomotives more effectively, another C. T. C. project has made it possible to release two locomotives to other service. Time-distance charts can be prepared to show the benefits possible through C. T. C., as compared with present operations on any helper territory. Furthermore, for short territories, ranging from 10 to 30 miles in length, the signaling required can be planned and installed within a few months, so that the benefits can be realized during the present emergency as well as thereafter.

Equities Lose in Supreme Court

Commission upheld in expropriating shareholders in reorganization cases, despite recent upturn in earnings

WASHINGTON, D. C.

UPHOLDING in practically all respects the acts and decisions of the Interstate Commerce Commission in formulating and putting into effect two railroad reorganization plans under Section 77 of the Bankruptcy Act, the United States Supreme Court in two opinions announced on March 15 clarified procedure under statute and so contributed to more active progress in other long-pending reorganizations. The cases before the court involved the commission's plans for reorganization of the Western Pacific and the Chicago, Milwaukee, St. Paul & Pacific. The former was fully approved; the latter was approved in general, but further consideration of the treatment accorded certain creditors was directed.

Several questions important in the field of railroad reorganization were passed on by the Supreme Court for the first time in the Western Pacific case. They involved the respective functions of the I. C. C. and the court under Section 77; the commission's valuation methods; the legality of excluding stockholders and creditors with secondary priority status from the distribution of the bankrupt's assets; the preference to be accorded the Reconstruction Finance Corporation for advancing new money upon trustees' certificates while reorganization was pending; the allocation of securities among various claimants; and the priorities of liens created by different mortgages.

There were no dissenting opinions to the court's decision in the Western Pacific case, though Justices Roberts and Frankfurter gave a separate concurring opinion in which they went somewhat beyond the finding of the court as to the duty of the district court in passing upon the commission's plan for allocation of securities. Justices Jackson and Rutledge did not participate in either of the cases.

Western Pacific Plan

The Western Pacific case was the outgrowth of the commission's plan for that road's reorganization which was certified to the district court on September 28, 1939, after some modifications of the original plan were adopted. The plan was outlined in *Railway Age* of October 22, 1938, page 601, and the modifications were summarized in the issue of July 29, 1939, page 194. In brief, the commission provided for the capitalization of the new company to include $2,750,050 of undisturbed equipment trust obligations, $10,000,000 of first mortgage 4 per cent bonds, $21,219,075 of income mortgage 4½ per cent bonds, $31,850,297 of 5 per cent preferred stock, and 319,441 shares of common stock without par value.

Under this set-up, fixed charges would total $994,202 annually, including an allocation of $500,000 a year for additions and betterments. Contingent interest would amount to $954,858, and sinking fund requirements to $106,095, while the total amount required to meet charges and preferred dividends would be $3,647,670 annually. The total capitalization of the new company, apart from the no-par common stock, would be $65,819,422, as compared to obligations of the old company totaling $154,067,350, of which the common and preferred stock amounted to $47,500,000 and $28,300,000, respectively.

Giving effect to this plan, the commission found that the existing stock, both common and preferred, had no value, and that the unsecured creditors should not participate in the distribution of securities under the plan. The district court heard protests against this decision but found that the commission had complied with the requirements of Section 77 in formulating it. However, on appeal, the circuit court of appeals found that the lower court should have required the commission to make a specific valuation of the entire property and of the respective portions covered by the different mortgages and claims and by the new securities allocated in the plan so it could intelligently pass upon the equity of the plan.

Commission's Judgment Final

Commenting on this interpretation of the statute, the Supreme Court's opinion, delivered by Justice Reed, said:

"These reorganizations require something more than contests between adversary interests to produce plans which are fair and in the public interest. When the public interest, as distinguished from private, bulks large in the problem, the solution is largely a function of the legislative and administrative agencies of government with their facilities and experience in investigating all aspects of the problem and appraising the general interest. Congress outlined the course reorganization is to follow. It established standards for administration and placed in the hands of the commission the primary responsibility for the development of a suitable plan. . . . The power of the court does not extend to participation in all responsibilities of the commission.. Valuation is a function limited to the commission, without the necessity of approval by the court. . . . Another restriction on court action is that the determination as to whether the plan is 'compatible with the public interest' rests, as valuation does, with the commission. . . . The problems of capitalization are of public interest. . . . So long as legal standards are followed, the judgment of the commission on such capitalization is final."

The action of the district court in finding that the commission had met the act's requirements was thus upheld by the Supreme Court, which in effect found that the commission's decision that stockholders and junior creditors had no equity in the property and no right to participate in the distribution of new securities was a proper exercise of its function, even though no specific valuation of the sort described by the court of appeals was prepared. Said Justice Reed further:

"We are of the opinion that the determination by the commission of the aggregate amount of securities which may be issued against the system is in substance a finding of total value for reorganization purposes. In view of the factors of value considered and the opportunity given all parties before the commission and the court to present all desired evidence, the commission's determination stands upon a firm basis."

Referring to the contention that the commission, in

dismissing as without value the claims of stockholders and junior creditors to a share in the distribution of new securities, acted arbitrarily to deprive them of property without due process and contrary to the provisions of Section 77, Justice Reed said:

"Actual bankruptcy means a loss to some investors. Subsection (e) recognizes this inevitable result and provides a method for their elimination from the reorganization proceedings. . . . A mere possibility that traffic might be found to the limit of the physical capacity of the system is not the kind of earning power which justifies the issue of securities based upon such a possibility."

Reviewing the distribution of securities of the new company between the creditors of the old, the court found the commission's determination as to priorities to be correct, and cited an earlier finding that "the stratification of securities issued to creditors need not follow invariably the relative priority of the claimants." The treatment of the Reconstruction Finance Corporation's claims in the plan, objected to by other creditors as unduly preferential, the court concluded to be a proper exercise of the commission's discretionary powers. It affirmed also the commission's view that the old company's first mortgage lien in general had priority over the refunding mortgage lien as applied to certain equipment, to the so-called Northern California extension (the 112-mile branch line from Keddie, Calif., to Bieber), and certain "non-carrier" property.

War Earnings Discounted

The court's opinion commented also upon the contention that the relatively better earning power of the industry in general and of the bankrupt road under present conditions as compared with those prevailing when the commission's reorganization plan was formulated should lead to a modification of the plan and more generous treatment of the old company's stockholders and junior creditors. Said the court:

"In the interest of advancing the solution of as many problems of reorganization as possible we have deliberated upon the effect to be given these unexpectedly large earnings. There are factors in these increased incomes which obviously affect their weight as evidence of continued capacity to produce earnings available for dividends. . . . The reduction by the plan of outstanding interest bearing securities makes income taxes more likely to affect net earnings. Increased wages and costs must be reckoned with and increased maintenance may reasonably be expected from increased use. Already serious proposals for decrease of tariffs have been advanced."

Continuing, the court found that "the commission's forecast was made with knowledge and not in disregard of past fluctuations of income, in war and peace." Under such circumstances, the opinion concluded, the evidence of improved earnings does not lead the court to reject the commission's plan.

Plan for the Milwaukee

The I. C. C. plan for the reorganization of the Milwaukee was outlined in *Railway Age* of March 2, 1940, page 405. After slight modification, it was approved in November of that year by the district court, but the circuit court of appeals in December, 1941, reviewing the lower court's action on appeal, directed that the plan be returned to the commission for a definite determination of valuation of properties underlying the various security issues. On this matter the case came before the Supreme Court, which upheld the lower court on the valuation question, and on the functions exercised by the court and the commission under Section 77 of the Bankruptcy Act, as referred to in the Western Pacific case under consideration at the same time. The district court was directed, however, to give further consideration to two objections to the commission's plan advanced on behalf of the general mortgage bondholders, one concerning the status of liens on certain lines and the other concerning the compensation accorded these bonds for the loss of their senior rights.

In brief, the commission's plan for the Milwaukee reduced the capitalization and fixed charges, eliminated the old stock, and substituted system mortgages for so-called divisional mortgages. Total capitalization was limited to $548,533,321 and fixed and contingent interest and other charges to $12,532,528 a year, in contrast to the old company's annual fixed charges of $23,739,279. In addition to undisturbed equipment obligations amounting to $33,322,999, the plan provided for a $58,923,171 issue of first mortgage 4 per cent bonds, for two series of 4½ per cent contingent interest general mortgage bonds aggregating $108,678,780, and for $111,347,846 of 5 per cent preferred stock and 2,131,475¼ shares of no-par common stock. A provision of $2,500,000 annually for additions and betterments was given priority over contingent interest charges.

The commission's plan also provided for a new lease between the new company and the Chicago, Terre Haute & Southeastern on terms more favorable to the Milwaukee, on condition that substantially all of the Terre Haute's bondholders agree to such terms, or for the old lease to be disaffirmed if that condition was not met.

In its opinion, delivered by Justice Douglas, the Supreme Court reviewed a number of problems arising from objections to the treatment accorded to holders of various classes of bonds of the old company, as well as the protests of the stockholders over their complete exclusion from participation in the reorganization. The court's findings in the Western Pacific case, announced at the same time, were applied without comment to the issue of the court's and the commission's functions under the statute. The propriety of excluding the old company's stockholders, however, was examined in some detail.

No Equity for Stockholders

The complaint of the stockholders was that the commission's conclusion that there was no equity for them in the reorganized company was based on inadequate grounds, and further, that the past three years have showed the road's earning power to exceed that found by the commission. Justice Douglas found this argument without merit. Section 77 (d) of the Bankruptcy Act requires the commission to "state fully the reasons for its conclusions" in developing a plan of reorganization, he said, and "the commission did exactly that. Its finding that the stock had no value was definite and explicit. To require it to go further and formalize in findings the numerous data on which it relied in the exercise of its expert, informed judgment would be to alter the statutory scheme. . . . It is the conclusion or ultimate finding of the commission together with its reasons and supporting data which are essential. . . . Congress has required no more."

To the contention that the commission erred in determining the permissible capitalization of the new company in not giving "due consideration to the earning power of the property, past, present, and prospective, and all other relevant facts," as provided in Section 77 (e) of the Bankruptcy Act, the court said:

"A valuation for reorganization purposes based on earning

power requires of course an appraisal of many factors which cannot be reduced to a fixed formula. It entails a prediction of future events. Hence 'an estimate, as distinguished from mathematical certitude, is all that can be made.' . . . The commission conceived as its responsibility the devising of a plan which would serve 'as a basis for the company's financial structure for the indefinite future.' We cannot assume that the figures of war earnings could serve as a reliable criterion for that 'indefinite future.'"

Moreover, said Justice Douglas, "the ratio of debt to stock, the amount of fixed as distinguished from contingent interest, the kind of capital structure which a particular company needs to survive the vicissitudes of the business cycle—all these have been reserved by Congress for the expert judgment and opinion of the commission which the courts must respect."

Reviewing the protests directed against the treatment accorded the Terre Haute bondholders in the commission's plan, the court pointed out that the question essentially was one of fairness as between classes of creditors, between the Terre Haute bondholders and the Milwaukee bondholders. The amount of the charges against the old company in the event the lease should be disaffirmed has a decided bearing on the integrity of the reorganization plan, it pointed out, and the commission and the district court have authority to determine what amount is fair to all concerned. Justice Roberts, in a dissenting opinion, expressed the view that the commission had not complied with the provisions of Section 77 in providing either for the Terre Haute bondholders or the general mortgage bondholders.

Betterments Fund Approved

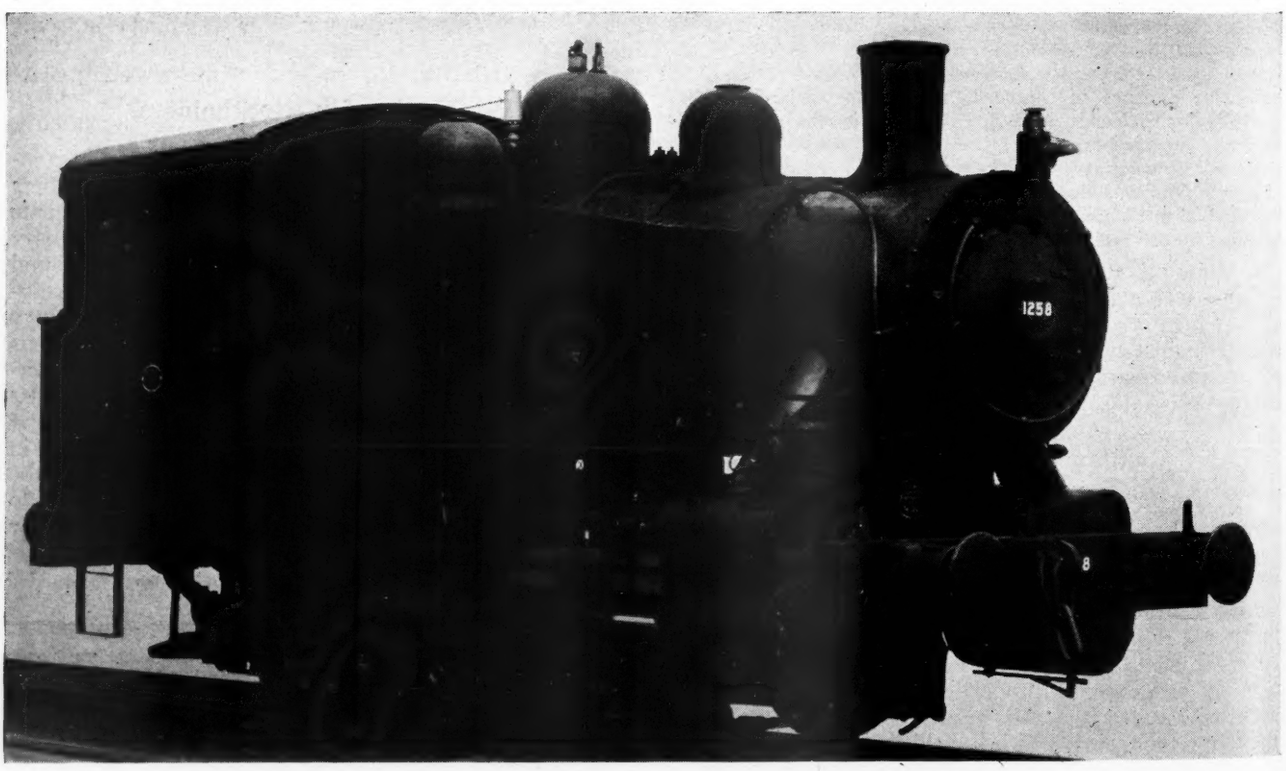
The objections on behalf of holders of the old company's general mortgage bonds were that their priority rights were violated under the allocation of new securities under the plan of reorganization, that the commission's findings did not afford an adequate basis for such allocations, and that the preference given the additions and betterments fund impairs their priorities. The view of the circuit court of appeals that the commission should have made specific findings of values of securities surrendered and securities given in exchange was not supported by the higher court, which took the same position in this case as in the Western Pacific case, that the commission's plan gave adequate consideration to the question of valuation. The commission's provision for betterments was found to be clearly within its power and highly relevant to the integrity of the new company.

Certain questions as to the priority between liens on certain lines and the proper compensation for a loss of seniority, however, were referred back to the lower court and the commission for determination.

American-Built 0-6-0 Switchers for England

A NUMBER of 0-6-0 type tank locomotives for switching service have been built and delivered for service in England by the H. K. Porter Company, Inc., Pittsburgh, Pa., on orders from the British Ministry of Supply. The locomotives have bar-type rolled-steel frames, and cast-iron cylinders and half saddles. They are for service on standard-gage track, weigh about 45 tons, and develop a tractive force of 21,600 lb. They are equipped for operation with steam brakes only. A few of the principal dimensions are set forth in the table.

The design is generally characterized by simplicity and ruggedness. The boilers are built of carbon steel, of ordinary flange and firebox quality, and carry a working pressure of 210 lb. The features of the design are



American-Built Side Tank Switch Engine Now in Use in Great Britain

American in type, including the lift-type throttle in the dome, the spring equalizing system, and sand boxes mounted on top of the boiler.

Steam distribution is effected by a Walschaert valve gear with 8-in. piston valves.

Mechanical lubrication is provided for the main piston valves and cylinders. The driving boxes are of the crown type and are lubricated with oil and waste packing. The crank pins are also oil lubricated.

The main and side rods are fitted with extra large oil reservoirs of rectangular pressed and welded construction which are attached to the ends of the rods by means of a central stud and tack welding to the rods at the lower four corners.

The boiler is fed by non-lifting injectors designed to handle feedwater at 132 deg. F.

Other dimensions and data are included in the table.

General Dimensions of the Porter 0-6-0 Type Tank Locomotive for Switching Service in England

Builder	H. K. Porter Co., Inc.
Type of locomotive	0-6-0
Date built	1942
Wheel base, ft.-in.	10-0
Wheels, diameter, in	54
Journals, in.	7½ x 9
Cylinders, no., and diameter and stroke, in.	2 – 16½ x 24
Valve gear, type	Walschaert
Valves, piston type, in.	8
Boiler diameter, in.	52
Steam pressure, lb. per sq. in.	210
Firebox length, ft.-in.	5-6
Firebox width, ft.-in.	3-6½
Tubes, no. and diameter, in.	150-2
Length over tube sheets, ft.-in.	10-0
Tractive force, lb.	21,600
Grate area, sq. ft.	19.4
Heating surfaces, sq. ft.:	
Firebox	86
Tubes	790
Total	876
Water capacity, U. S. gals.	1,200
Fuel capacity:	
Coal, short tons	1
Oil, U. S. gals.	300

Perfect Shipping Month

THE April perfect shipping month campaign was thrown into gear on March 18, when a Perfect Shipping luncheon program was arranged as an opening gun by the Traffic Club of Chicago in cooperation with the National Management committee of the Perfect Shipping Campaign. E. A. Jack, general chairman of the National Management committee, stressed the importance of perfect shipping during the war, and Major General Charles P. Gross, chief of army transportation, described the progress that the Army has made in promoting perfect shipping.

As in previous years, the nation-wide campaign is sponsored by the National Association of Shippers Advisory Boards. The importance to the war effort of good packing, secure loading and careful handling of freight shipments will be stressed this year. Participating in the campaign are the 13 regional advisory boards, the Association of American Railroads, the Railway Express Agency and other interests. The drive will be high-lighted by the holding of a series of local meetings in many other principal cities during the month by regional boards and traffic and transportation clubs. Railroad employees will be appealed to on the subject at brief rallies in freight yards and terminals when operations permit it. In addition, the railroads will form perfect shipping month campaign committees comprised of one member from each of the departments which are chiefly interested, including operating, traffic, public relations and freight claim departments.

In addition to an aggressive campaign to bring about a sharp reduction in such losses in 1943, the Management committee is planning the production of a sound motion picture, an essay contest and a series of radio broadcasts. War bonds will be awarded as prizes for the best composition of 50 words or less on materials and methods that contribute most to the reduction or the elimination of loss, damage or delay in transportation. The contest is open to shippers and their employees in all parts of the country. Awards will be made on March 29.

The campaign this year bears such an immediate relation to the whole war effort because of the irreplaceability of goods that it has been endorsed by Joseph B. Eastman, director of the Office of Defense Transportation, by Donald Nelson, chairman of the War Production Board and by Colonel W. J. Williamson, chief of traffic control of the War Department. In announcing plans for the drive Mr. Jack stated: "Never before has perfect shipping been so vital to the country. We have but one objective, to keep our transportation channels free from the sabotage of loss and damage mishaps for the expeditious and efficient movement of all war business. All who supply or use transportation in this country are going to join in perfect shipping to speed equipment and supplies that will ultimately be used by our boys on fighting fronts throughout the world.

"While this is the seventh year in succession that April has been 'perfect shipping month' for rail shippers and carriers, it is the first time the drive has been devoted wholly to the movement of all-out war traffic. Yet, despite intensification of effort for this objective, the vast increase in traffic volume has been exceeded in percentage, at least, in the number of loss and damage payments by the carriers. Thus, in 1942, while the railroad freight business was up approximately 23 per cent, claims on various classes of traffic rose nearly 45 per cent and when the final figures are in, will total not far from $35,000,000, an economic waste that is a drain on national resources in wartime."

In endorsing the campaign Mr. Eastman said: "Wartime conditions make it more necessary than ever for shippers, handlers, and receivers of freight and express to strive for the goal of perfect shipping. Today many materials are on the critical list. All transportation facilities are heavily burdened. Goods lost or damaged in transit may be virtually irreplaceable. In any event, their replacement involves duplications of production and of transportation which the Nation can ill afford. Perfect shipping will save materials, save transportation, and save manpower.

"The war compels utilization, to the fullest possible extent, of every freight car and every locomotive the railroads possess. To get maximum service out of available equipment, freight cars must be loaded more heavily than has been customary, they must be loaded and unloaded promptly, and moved with the utmost dispatch and efficiency. As I see it, perfect shipping in wartime means attainment of all these objectives, in addition to the exercise of every care in the packing, marking, and handling of shipments."

Mr. Nelson in his endorsement said: "Proper packaging, loading and handling of shipments is more than ever important, in these critical days. We cannot afford the production delays and the losses of time and materials which result when goods are damaged in transit. I hope that your campaign will win the hearty support of all manufacturers, merchants, chambers of commerce, trade associations and transportation agencies."

Hearings Continue in Non-Ops Wage Case

THE railways, on March 17, began the presentation of this testimony before the emergency board hearing the demands of the non-operating employees for a wage increase of 20 cents an hour, a minimum wage of 70 cents an hour and a closed shop. During the period from March 1 to March 16 the non-operating employees of Class I railroads presented their testimony each morning to a three-man board and on March 17 the railways began presentation of their evidence.

The vital importance of strong railroads to our national welfare was emphasized in opening testimony by Dr. J. H. Parmelee, director of the Bureau of Railway Economics. "The controlling features in this proceeding," Dr. Parmelee said, "are the war and its requirements. Railroads and the service they render are vital to the war effort. It is clear that we need strong railroads, both in peace and in war, and again after this war, in the peace that is to follow. That strength should be financial, physical and psychological: financial, in terms of adequate earnings to operate and maintain the plant and equipment during and after the war; physical, in the sense that railroads should be maintained in the best condition the limited availability of materials will permit during the war, together with the accumulation of reserves to take care of physical needs in the postwar readjustment period; psychological, in assuring such a freedom from uncertainty for the future as will enable rail managements to plan and carry out adequate programs of improvements for the competitive struggle they will face in the postwar world."

Traffic Will Shrink When War Ends

The accomplishments of the railways thus far in the war, Dr. Parmelee continued, furnish a further striking argument for keeping the industry strong. He then discussed in some detail the changed nature of the transportation demands made upon the railroads and strongly emphasized the temporary nature of these traffic shifts. "There are many unusual types of freight moving over very unusual routes, temporarily shifted to the rails in response to emergent war conditions," Dr. Parmelee said. "Sudden and dramatic as those shifts have been, it is certain that they will disappear as suddenly, when business resumes its peacetime course and when water and highway carriers return to their normal routes. A mere recital of these movements emphasizes their temporary character."

Although railroad freight traffic increased by more than 40 per cent between 1929 and 1942, and passenger traffic increased by more than 70 per cent between the same years, the net income of the railroad industry increased by only 7 per cent, stated Dr. Parmelee, and continued, even these increased earnings of the carriers should be considered against the background of the great increase in their traffic, and with the expectation that these traffic levels will continue only through the period when the war effort is at its peak. To the extent that the present high levels of railway traffic and earnings have been stimulated by war activity, to that extent the economic stimuli behind them are artificial. The present situation should be viewed against the more solid and stable background of the past and future, in peacetime and wartime, over a considerable period of years.

"At the close of the war, many, if not all, of the present unusual classes and types of rail traffic movement will shift back to their former channels, or will find new channels, and railroad traffic rapidly will revert to much lower levels. When these lower levels will be reached, and how much lower they will be than those now being experienced, it is impossible to predict. But that the present volume of traffic, revenue, and net earnings is only temporary, is certain. Yet the tremendous impact of the war on the railroads emphasizes their vital need for greater than normal earnings, so as to meet the continuing responsibility of providing an efficient war transportation machine, today, tomorrow, for the balance of the year 1943, and as long as the war may continue.

In this connection, Dr. Parmelee referred to the difficulties which the railroads are experiencing in securing materials, not only for new construction, but even for current maintenance work. "Various elements of maintenance of way, since 1939 and particularly in 1942," he said, "have not been kept up to even the depression levels of the thirties. This fact reflects, among other things, the difficulty the railroads have encountered in obtaining sufficient material for their maintenance work, including not only steel, but ties, lumber, and many other items.

"The material and equipment situation of the railways is a most important element in relation to the traffic load they now are called upon to handle. The carriers have not been able to secure authorization for as much material, or for as many units of new power and equipment, as are needed, in their opinion, to handle the present large volume of traffic in the most effective and expeditious manner. The price of the deficiency eventually must be paid from the earnings of some future year or years."

The many advantages enjoyed by railroad employees which are not shared by workers in other industries were described by Dr. Parmelee, who discussed the seniority system on the railroads and certain special legislative and other provisions granted to railroad employees and not enjoyed by employees in other industries. "Two of these types of special benefits lie in the field of social security, namely, retirement annuities granted on account of old age or disability, and unemployment benefits. In respect to old age or retirement benefits, the Railroad Retirement Act is more liberal than the Social Security Act in regard to the monthly benefit amount, credit for prior service, the lower permissive age of retirement, disability retirement annuities, and both the maximum and minimum annuities. In addition, rail employees enjoy their own unemployment compensation system, under which they receive more generous unemployment benefits than employees of industrial employers in the several states."

The employees of Class I railroads concluded their

(*Continued on page 590*)

In Next Week's Railway Age:

How Western Pacific Handles Its Wartime Traffic

In an article illustrated with photographs—as well as charts, map and profile—our transportation editor will set forth the magnitude of the transportation task being performed by this single-track railroad—and record some of the significant physical and operating measures which combine to make the job a success.

Railway Age
Presents
A. R. E. A.
Convention in Print
and
N. R. A. A.
Exhibit in Print

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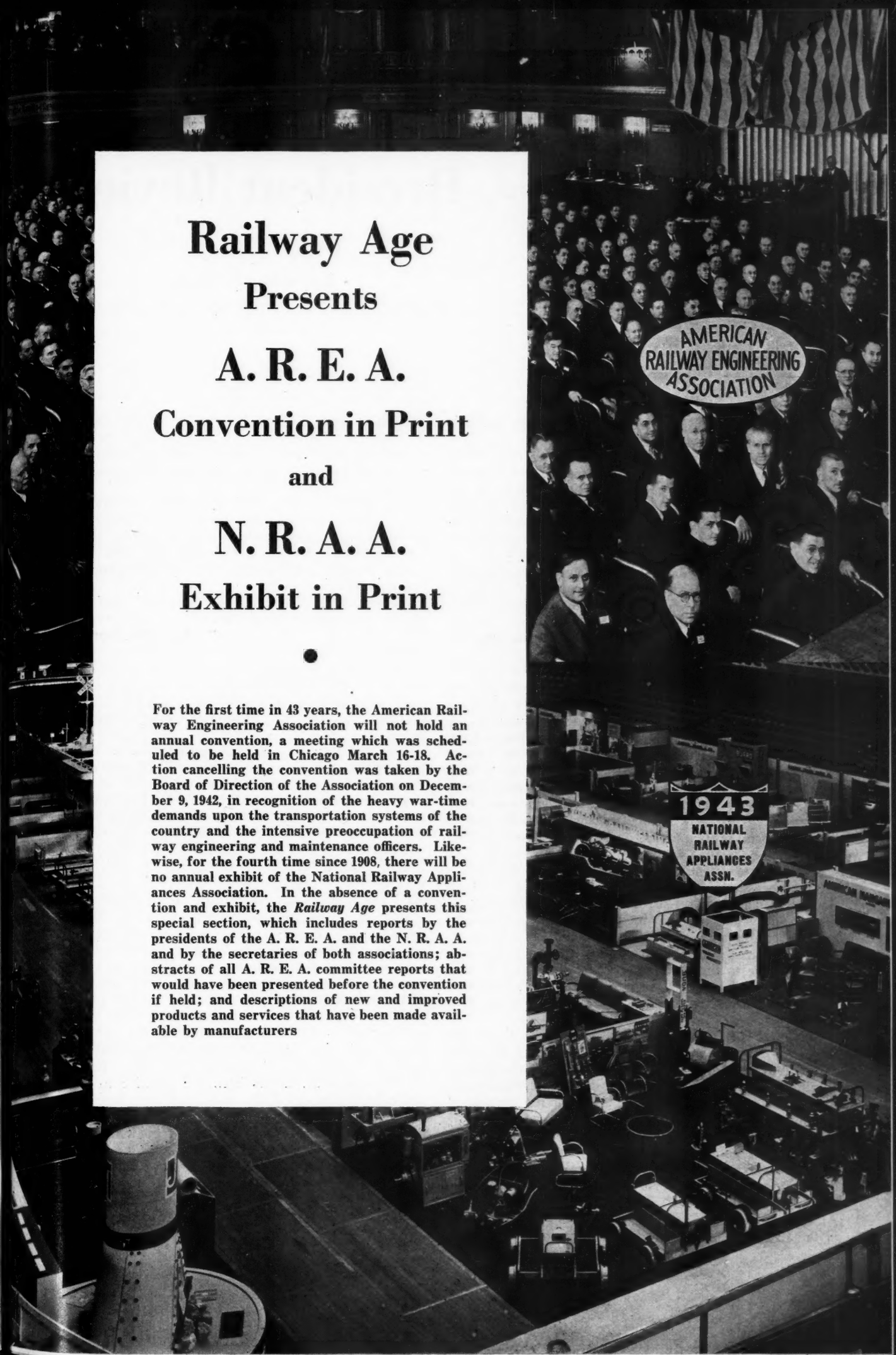
For the first time in 43 years, the American Railway Engineering Association will not hold an annual convention, a meeting which was scheduled to be held in Chicago March 16-18. Action cancelling the convention was taken by the Board of Direction of the Association on December 9, 1942, in recognition of the heavy war-time demands upon the transportation systems of the country and the intensive preoccupation of railway engineering and maintenance officers. Likewise, for the fourth time since 1908, there will be no annual exhibit of the National Railway Appliances Association. In the absence of a convention and exhibit, the *Railway Age* presents this special section, which includes reports by the presidents of the A. R. E. A. and the N. R. A. A. and by the secretaries of both associations; abstracts of all A. R. E. A. committee reports that would have been presented before the convention if held; and descriptions of new and improved products and services that have been made available by manufacturers



H. R. Clarke
President

A.R.E.A. Convention
President Reviews

By Herbert R. Clarke*
President, American Railway Engineering Association

THIS year we willingly forego the profit and advantages inherent in an annual meeting of a professional organization such as the American Railway Engineering Association. That is one of the handicaps imposed by war conditions, so it is not to be my privilege to address you personally. Instead, I take this opportunity to report to you the emergency actions that have been taken during the year and the present condition of our association.

In the last year, during which I have been allowed to serve the American Railway Engineering Association as president, unusual emergency conditions have developed in the railroad industry. I trust that our association has done its part in making possible the splendid job that the railroads have done. I believe it has and, if so, it is due to the wise guidance of the Board of Direction and the loyal, efficient work of the secretary and staff. I express to them my deep appreciation for their help and advice. I cannot speak too strongly of the splendid way in which the chairmen and members of the standing and special committees have carried on, or emphasize too highly the value of the work they have done. The reports submitted, which are in your hands, speak for themselves. They merit your careful study and consideration. I stress this since the high spots cannot be emphasized in presentations, as has been done in other years.

As emergency conditions began to develop and action became necessary, your officers and the Board of Direction decided that, if the association was to discharge its responsibility and perform its duty, precedents must be broken and unusual measures adopted. We have attempted to keep you advised of all of this as it occurred.

From time to time we have been called upon to suggest members for special service. Among such assignments have been representation on the following committees:

Technical Advisory Committee on Rail and Track Accessories—This committee, appointed by C. L. Warwick of the War Production Board, was asked to recommend specifications for application exclusively in the manufacture of the specific materials covered, for the purpose of stepping up production for civil as well as war needs.

A. A. R. Special Committee on Specifications—The work of this committee was somewhat parallel to but much more extensive than that of the Technical Advisory Committee mentioned above. This committee, appointed by Vice-President C. H. Buford of the Association of American Railroads, was composed of representatives of the Engineering and Mechanical divisions, and of the Telephone and Telegraph section of the Operating-Transportation division. As a result of its work, lists of specifications were prepared and recommended for use by all railroads for the duration of the emergency period.

Committee on Conservation of Rubber—This committee, suggested by the Mechanical division, was appointed to deal with the miscellaneous uses of rubber, other than for cars and locomotives and for wire and cable. A number of valuable suggestions for the conservation of rubber were made.

Committee on Released Rail—At Mr. Buford's request, this committee met with representatives of the Office of Defense Transportation and other units of the Federal Government to discuss plans for and procedure to be followed in making available second-hand rail for the use of the Army and Navy. The recommendations made were of material assistance in solving this difficult problem and were of substantial value to the railroad industry.

Committee on New Rail Allotment—When it became evident that the tonnage of new rail deemed necessary for and ordered by the railroads could not be supplied, members of this committee, named by Mr. Buford and appointed by the O. D. T., after conferences in Washington, consulted with the engineering officers of individual railways and submitted a report to the O. D. T., which, while no doubt not satisfactory to all concerned, was helpful in overcoming difficulties which had developed and was at least reasonably fair to all affected.

In addition to these activities, which have been conducted in accordance with rather well-defined procedures and are a matter of definite record, your association has been called on for assistance in a variety of problems, usually of an emergent nature demanding informal action and equally informal reports. In this category there have been included investigations of the effect of limitation orders of the W. P. B. affecting the purchases of manila and wire rope, anti-checking irons, stress grade lumber, track tools and railway trackwork. Because of the time element, it has been the practice to call into conference members of the association who were not only thoroughly conversant with the points at issue but were most readily available, giving due consideration to the severe limitations imposed on travel.

Your officers are keenly conscious of the importance of broad representation of the membership in deliberations affecting the railroads, and this principle has been applied wherever it has been practical to do so. But on

* Chief Engineer, Burlington Lines, Chicago.

in Print

Year Without a Precedent

W. S. Lacher
Secretary

some occasions expedition outweighed all other considerations, since it offered the only means of insuring that the association could be of service to the railway industry.

The various groups referred to above were not A. R. E. A. committees, nor was their work, strictly speaking, an activity of that association. However, the personnel was selected from the membership of the association, their work is a credit to the association, of value to the railroads as a whole, and we believe to our country. I cannot express too strongly my appreciation of the way in which these busy men responded to the request that they serve, or speak too highly of the whole-hearted way in which they undertook the assignments given them. It has been such men, standing ready at all times to give their best, who have placed this association in the enviable position it occupies today.

The increased activity of the association has had to do, principally, with the problems growing out of the scarcity of materials in general and, especially, certain very critical ones. The objective has been to eliminate or, at least, reduce the use of very critical materials and to so simplify and standardize specifications and procedures that production of all supplies would be increased. Several measures designed to bring this about have been suggested and adopted. In general, they may be summed up as conservation, substitution, reclamation and simplificaton. Equal progress has not been possible in all these lines of approach but the work done by the standing and all special committees has been of great value. All members of the association and the chief operating and engineering officers of all roads have been advised currently by the secretary of all emergency measures adopted, colored sheets being issued carrying the modified recommendations, specifications and standards, with the definite understanding that these are effective for the emergency only. At the termination, they become void automatically.

Emergency Procedure Adopted

The constitution of the A.R.E.A. recognizes one method only for the adoption or modification of specifications and standards—that is by action of the members at the annual meeting. This procedure would not answer in the present emergency and one of the most difficult problems presented was to devise means and set up a plan and line of authority which would permit modification of Manual material to become effective at once, without waiting for formal action of the association at its annual meeting. The first approach to this problem was to authorize the committees themselves to establish modified practices by letter ballot of their personnel and without subsequent ratification by some advisory body. It was soon found that this did not allow action with the speed that was sometimes necessary and other procedure had to be developed.

As has been said, there had been frequent occasions for the appointment of committees to serve some special purpose and to handle some particular problem on short

notice. The success with which these committees had functioned and the promptness with which they had handled their assignments suggested that it would be possible to set up small permanent committees so that groups, qualified by experience in the field and service on committees, would be available at once to consider each problem as it developed. These committees were empowered to ratify emergency recommendations of the standing committees.

Your president, acting in his capacity as chairman of the engineering division of the A.A.R. and at the request of Vice-President Buford, appointed the following committees:

ROADWAY AND TRACK PROBLEMS

W. H. Penfield (chairman), chief engineer, Chicago, Milwaukee, St. Paul & Pacific
J. B. Akers, assistant chief engineer, Southern
S. E. Armstrong, engineer maintenance of way, New York Central System
H. R. Clarke, chief engineer, Burlington Lines
C. J. Geyer, engineer maintenance of way, Chesapeake & Ohio
J. L. Gressitt, chief engineer, Pennsylvania

STRUCTURAL PROBLEMS

J. E. Bernhardt (chairman), bridge engineer, Chicago & Eastern Illinois
R. P. Hart, bridge engineer, Missouri Pacific
J. F. Leonard, engineer bridges and buildings, Pennsylvania
C. E. Sloan, engineer of bridges, Baltimore & Ohio

WATER SUPPLY AND WATER TREATMENT

R. C. Bardwell (chairman) superintendent water supply, Chesapeake & Ohio
R. E. Coughlan, engineer of tests, Chicago & North Western
W. L. Curtiss, mechanical engineer, New York Central
A. B. Pierce, engineer of water supply, Southern

TIES AND WOOD PRESERVATION

H. R. Duncan (chairman), superintendent timber preservation, Chicago, Burlington & Quincy
R. S. Belcher, manager treating plants, Atchison, Topeka & Santa Fe
W. J. Burton, assistant to chief engineer, Missouri Pacific
W. D. Simpson, assistant chief engineer maintenance of way, Seaboard

REPRESENTING THE BOARD OF DIRECTION

H. R. Clarke (chairman), F. R. Layng, E. M. Hastings, A. R. Wilson

Recommendations for emergency action initiated by any of the standing committees, or acted upon by them at the request of others, are referred to the appropriate emergency technical committee and upon ratification by that committee are submitted to the emergency committee representing the Board of Direction for approval. Upon approval, the secretary issues appropriate notices. It has been necessary to consider a number of modifications, proceeding as outlined above, and the results so far justify the plan. All such emergency provisions are for the period of the emergency only.

The committees, in addition to passing on recommendations for emergency provisions, also stand ready to deal with various special assignments which, judging from the experience of the last few months, will be presented from time to time.

The association is in a satisfactory financial condition, as will be seen by referring to the reports of the secretary and treasurer, which I trust you will read carefully.

During recent years, membership in the association has not been showing satisfactory growth, for reasons well known to you, and present world conditions are not such as to make possible any great advance at this time. Your Board of Direction is not unmindful of the fact that continual growth is necessary to any healthy body and has taken such action to increase membership as it thinks consistent with the dignity and prestige of our association. Some progress has been made.

Progress in Research

Under the general direction of the association, acting in its capacity as the Construction and Maintenance section of the Engineering division, A.A.R., and the closer supervision of the Research committee of the General committee, research activities comprised an important phase of the association's work in 1942. In September,

1941, a research staff, employed under the supervision of the research engineer of the Engineering division, was set up to function as a service agency for the conduct of investigations bearing on the subjects assigned to the various committees. Many of the committees took advantage of this opportunity and the budget for research activities requested for 1942 and approved by the A.A.R. totaled $87,932. Considerable difficulties were experienced during the year in securing and maintaining adequate personnel and equipment to progress the research work to the fullest extent, but in general the program, as outlined for the year, has been carried on substantially in accordance with the schedule.

Considerable progress was made during the year on the tests of locomotive counterbalance carried out for the Joint Committee on Relations between Track and Equipment of the Engineering and Mechanical division. Field tests were completed on two high-speed steam locomotives in accordance with the committee's program embracing six series of tests with various arrangements of counterbalancing. In addition, tests were conducted on 12 other locomotives to determine whether recent changes made in their counterbalancing had resulted in sufficient improvement in performance to warrant their operation at higher speeds. This work has been of distinct advantage to the railways' participation in the war effort because the results thereof have indicated that substantial improvements can be made in the balancing of older locomotives and thus permit them to be used more effectively in handling the heavy volume of wartime traffic. Although the field work in connection with these tests has been concluded, the final analysis and reports cannot be completed until about mid-year 1943.

Another important research project is the Bridge Im-

pact Investigation for the Special Committee on Impact. During the year tests were conducted on six I-beam spans from 20 to 30 ft. long under steam and Diesel locomotives for the particular object of determining impact effects of track irregularities such as battered rail joints, and the relative impact effects with open and ballast decks. These tests have indicated that a material reduction in impact is obtainable if rail joints are either kept off the span or are maintained in a condition of inappreciable batter. In addition to this work, special tests were made on one bridge of each of three railways, at their request and expense, to determine whether the stresses were excessive for the traffic being handled. This work was a direct contribution to the war effort because increased demands placed upon these structures by wartime traffic were causing responsible officers concern.

Although the foregoing two projects were the principal ones from the standpoint of expense involved, many other projects of equal importance made progress during the year. These included a continuation of the transverse fissure investigation, periodical measurements and a report of service tests of joint bars, fatigue tests on joint bars in the rolling-load machine in the laboratory, field and laboratory investigation of welding of manganese trackwork, rolling load tests in the laboratory to determine safe wheel loads with respect to wheel diameters, a study of shelling of rail on curves, laboratory tests to determine the fatigue strength of structural welds, tests to determine the relative properties of pitch and asphalt for waterproofing, an investigation of bolt tension in track bolts, and a study of impact effects from flat spots on car wheels. Substantial progress has been made in all of these investigations and reports are included on most of them in the current bulletins.

The sympathetic understanding, co-operation, and assistance of C. H. Buford, vice-president, A. A. R., and his staff have made it possible to accomplish this. I wish to record my appreciation of this advice and support.

While members may take pardonable pride in the association's achievements since December 7, 1941, even more satisfaction is to be derived from the recognition which A. R. E. A. recommended practices have received from various agencies of the United States Government. By action of the Army and Navy many of the association's specifications have been made mandatory for the construction of tracks and allied structures for military and naval use and for the purchase of track materials, tools and appliances. In the measures adopted by the War Production Board in fostering simplified practice as applied to the fixed properties of the railroads it has in all cases used A. R. E. A. recommendations as the basis for its simplification orders.

Annual Meeting Deferred

The decision to defer the annual meeting was the most difficult we had to make. This unprecedented step was taken only after thorough deliberation and with the greatest reluctance. While it breaks the continuity of annual meetings over a period of 43 years, the situation confronting us today is without precedent. Shortages of material and labor, and at the same time the heaviest traffic, both passenger and freight, and the most exacting demands ever made on the railroads impose a burden of responsibility on all railway men which affords them little opportunity to leave their posts of duty. It is thought that such time as the members can spare will be of greater value if directed to committee work than to attendance at an annual meeting.

With the exception of the annual meeting, the work of the association has been carried on so far as possible as usual, modified only as has been necessary to permit of prompt decisions being made and action taken as emergencies arose. The committees have carried on, some times under difficulties, and have done outstanding work. I earnestly urge that all committee chairmen and members continue to work, as they have in the past, so that our association may not lose prestige during the time that the annual meeting must be suspended, and that we may continue to give to the railroad industry that constructive guidance in maintenance and construction engineering which it has so long been our privilege to render.

It is the opinion of the Board that the annual meeting could not be justified on the ground of necessity (the only reason which could possibly justify it under present conditions) since it is possible to progress the work of the committees competently *for a time* by letter ballot, instead of annual meeting action, in determining the will of the membership regarding recommendations covering material offered for the Manual.

In cancelling the annual meeting, the Board of Direction has no thought whatever of suspending the work of the association or lessening our activity in any other way. On the contrary, the experience of the past year has convinced us that committee work must continue, regardless of difficulties which may arise. The committees have already done much of direct value to the railroads and must continue to meet and solve any problems which may arise because of war conditions.

All committee reports for the current year have been published in bulletin form and are in your hands. These reports, together with the written discussions, for which we have asked, will be studied by a committee of the Board which will review and weigh them carefully, as nearly as possible as would be done at the annual meeting. Material recommended for the Manual will then be submitted to the members by letter ballot and committee reports, written discussions, and results of the letter ballot will be published in the Annual Proceedings for 1943.

Revisions of and additions to the Manual (approved by letter ballot by the members) will be issued as usual in the annual supplement.

Work Must Go On

Chairmen of committees were advised of their tentative outlines of work and personnel for the coming year some time ago. These will be modified promptly, as may be made necessary as a result of the letter ballot of members, and final information will be issued. Many, possibly all, of the committees have reorganized their sub-committees and started work on their assignments. In some cases, probably in many, the work of the committees will be carried on under more difficult conditions than in the past. That, however, together with the recognized importance of our work to the railroad industry and through it to our country in this time of need, should spur us to a grim determination to see to it that the standard of the work done is not lowered and the usefulness of our association is not lessened. Instead, let us raise the standards, increase the usefulness and prestige of our association, and make it more vital than ever in winning the war. We must not fail.

Your Board of Direction is keenly aware of the grave responsibility assumed as a direct consequence of the drastic steps taken in an effort to meet a serious crisis in the life of our association. We hope you agree the

action was wise and concur in the various measures that have been taken, growing out of that decision. Convinced of the wisdom of the pioneer founders who outlined the plan and laid the foundation on which the A.R.E.A. has built an enviable reputation for valuable service to its members, the railways and the people they serve, we look forward with confidence to the day when the established procedure may be resumed.

Secretary's Report

By W. S. Lacher*

This report covers the calendar year 1942 with respect to finances and the period from March 1, 1942, to March 1, 1943, so far as all other activities of the association are concerned. To sum up the record as it is presented in greater detail in the following statement, the accounts of the association show an excess of receipts over expenditures of $4,807.81; there was an increase of 22 in the number of members, bringing the total to 1,965; the committees prepared reports totaling 626 printed pages, compared with 616 pages in the previous year; the reprinting of the Manual was completed during 1942, except for Chapters 11 and 15 which will be reissued in 1943; the complete revision of the Portfolio of Trackwork Plans undertaken in 1939 was concluded in March, 1942, with the approval of the last group of plans and specifications; research work in the interest of studies being carried on by the committees has been augmented as larger appropriations have been authorized by the A.A.R., the total for the Engineering division for 1942 being $98,542.

The financial statement for the calendar year of 1942 may be summarized as follows:

Finances

Receipts	$31,500.26
Disbursements	26,692.45
Excess of receipts over disbursements	$ 4,807.81

The membership record for the period from March 1, 1942, to March 1, 1943, was as follows:

Membership

Members on rolls as of March 1, 1942		1,943
New members		99
Reinstatements		20
		2,062
Lost by death	26	
Resigned	28	
Dropped	43	97
Net gain	22	
		1,965
Membership as of March 1, 1943		1,965

The composition of the membership as of March 1, 1943, compared with March 1, 1942, is as follows:

	1942	1943
Life	168	182
Member	1,466	1,496
Associate	272	249
Junior	37	38
	1,943	1,965

* Secretary, American Railway Engineering Association.

The increase of 22 in the number of members compares with 35 for the year ending with March 1, 1942, and 29 for the corresponding period ending March 1, 1941. Thus there has been a net increase of 85 in the total membership since March, 1940, when the association was confronted with a record low of 1,880 in its membership roll.

According to information received in the secretary's office, 67 members are in military service, compared with a record of 20 on March 1, 1942. Furthermore, the association has suffered the loss of 26 members during the year by death, an appreciably smaller number than in any recent year.

Publications

The number of text pages in the seven bulletins ending with Bulletin 438 for March, 1943, was 834, or 31 pages less than in the seven bulletins ending with the issue for March, 1942. However, it represents a marked reduction as compared with the seven bulletins ending with the issue for March, 1941, which contained 1,282 pages, because of the volume of special reports appearing in the "summer" bulletins of 1940.

Volume 43 of the Proceedings (1942) was appreciably smaller than the volume for 1941, containing 815 pages compared with 1,166. Of this decrease of 351 pages, 131 pages are accounted for by a reduction in the size of the committee reports prepared for presentation at the annual meeting in 1942, and the remainder is due to the fewer pages in the special reports reprinted from the "summer" bulletins of 1941.

Progress in the revision of the Manual is shown in the annual supplements. The number of new sheets issued in 1942, 144, considering that this supplement included the revised biennial alphabetical index, was appreciably smaller than in any years since 1937. However, what is more significant is the fact that the number of new sheets issued was smaller than the number of old sheets withdrawn, so that there was a net decrease of 5 in the nummer of sheets in the Manual. This is obviously a healthy trend in the attitude of the committees toward the Manual material under their supervision, as it indicates that they are keenly aware of the necessity for giving as much attention to the deletion of obsolete material as to the adding of new subject matter.

Sales of complete Manuals during 1942 totaled 217, thus bringing the total distribution to 2,311 copies. The augmented demand for the Manuals as the result of the increase in railroad construction stimulated by the war effort has continued unabated.

With the approval at the annual meeting in March, 1942, of 24 additional plans, 4 sheets of specifications and 3 sheets of definitions of technical terms, the general revision of the Portfolio of Trackwork Plans undertaken by the Committee on Track in 1939 was completed. In its present form, therefore, the portfolio now contains 111 sheets of drawings and a table of contents, in addition to the 7 sheets of specifications and definitions, or a total of 119.

Work of the Committees

As no new committees were created and none was abolished during the year, the number of committees remains the same as it was a year ago, namely 25, of which 23 are regular and 2 are designated as special. The number of members serving on the 25 committees during 1942 was 632, compared with 650 in the previous year. The total number of committee memberships (counting

two or more times the men who serve on more than one committee) was 804, a reduction of 15 from the aggregate committee personnel in 1941. Excluding the Committee on Standardization, which has only 4 members, the average number of persons per committee is 33. The Committee on Track, with 58 members, is the largest, and the Committee on Clearances, with 12 members, is the smallest.

Exclusive of meetings that were held in Chicago during the course of the association's annual meeting in March, there were 45 meetings of the committees in 1942, whereas the total in 1941 was 53, which figure was appreciably below that of previous years. An analysis of the committee activities during the last year shows that 5 committees handled their work entirely by correspondence, 6 had only one meeting, 7 held two meetings each, 3 had three meetings and 4 had four meetings each.

Aiding War Program in Many Ways

Aside from these regular meetings, some members of committees were required to attend a variety of emergency meetings and conferences involving special duties incident to the war effort of the railroads or to problems brought about by the state of war. Most of these meetings were called at the request of officers of the A. A. R. for the purpose of dealing with some pressing problem, usually of an emergency nature. A few of them were held with the object of initiating recommendations for the conservation of critical materials. In addition to attendance at such meetings, chairmen of committees and sub-committees have been required to devote no small part of their time to the handling of emergency matters by correspondence—as a means of avoiding travel—with the result that the number of meetings held is not indicative of the work done. In all cases, the object was the preparation of a specific report—in some instances solely for the information of agencies of the federal government, but usually for general distribution either to chief engineering officers of member roads or to A. R. E. A. members.

Reports were prepared by 23 of the 25 committees, there being no occasion for reports from Committee 26—Standardization, or Committee 28—Clearances. The 23 committees whose reports were published in Bulletins 433 to 437, inclusive, presented material on 102 out of a total of 179 subjects assigned to them. As this ratio of reports prepared to subjects assigned is not out of line with the record of previous years, it is evident that thus far there has been no falling off of committee performance as a result of the state of war. This is evident also from the fact that the number of pages in the current reports of the committees totals 626, or 10 more than the total of the reports for the annual meeting in 1942.

Research Work

The outstanding trend in the work of the association during the last five years is reflected by the marked increase in the funds for research work which the A. A. R. has allotted to the Engineering division, since nearly all of the money provided is being used in the development of test data that are of direct value to the A. R. E. A. committees in their study of problems assigned to them.

The appropriations in 1941 and 1942 were $95,150 and $87,932, respectively, but in each year the expenditures were appreciably less than the allotments—in 1941 by reason of delay in the delivery of a large order for testing equipment, and in 1942 because the railroads were unable to release for the counterbalance tests all of the locomotives included in the schedule, and because a portion of the staff was engaged for a considerable period on special investigations on individual railroads for which the A. A. R. was reimbursed.

Additional Studies Undertaken

A noteworthy feature of the program for 1943 is the pronounced increase in the number of individual projects. These projects include the following: Transverse fissure investigation; rail failure statistics; service tests of joint bars; rolling-load tests of joint bars; cause of shelly spots and head checks; investigation of web stresses; study of engine burns; stresses in tie plates; bolt tension tests; corrosion from brine drippings; welding of manganese frogs; impact investigation; fatigue strength of welds; tests of asphalt and pitch; electrolysis studies; and boiler feedwater studies.

In addition to these projects, an allotment of $30,000 for the Engineering division's portion of investigation under the supervision of the Joint Committee on Relation Between Track and Equipment covers four separate projects. These are locomotive counterbalance studies; the relation of wheel loads to wheel diameters; the gage of track and rail and wheel contours; and a study of the effect of flat spots on wheels.

Two of the projects included in the 1943 budget, namely, the rolling-load tests of joint bars and the investigation of web stresses in rails, represent continuations of studies carried on previously under the blanket assignment of the Special Committee on Stresses in Railroad Track.

On two others, the bolt tension tests and the study of corrosion from brine drippings, considerable work has already been done by the research engineer in co-operation with several railroads, without any appropriation for the purpose. The allocation of specified sums for particular investigations is in line with the policy adopted early in 1941 when the research program of the Engineering division was reorganized following the disbanding of the Special Committee on Stresses in Railroad Track. Special mention is made of the allotment of $2,000 for a study of electrolysis made at the request of the Electrical section.

A.R.E.A. Committee Reports

Abstracts of the technical reports of 23 committees of the association, including material recommended for adoption as well as that submitted only as information

TO replace the usual presentation of the reports of its technical committees before its annual meeting, which is not being held this year, the Board of Direction of the American Railway Engineering Association formulated an emergency procedure for reviewing the reports, while at the same time giving members an opportunity to express themselves concerning the reports, and to pass on all material recommended for addition to or deletion from the Manual.

In the first place, it appointed a special reviewing committee from among its own members to review all of the reports, together with such discussions of the reports as were received from members, this committee being asked to give special attention to material recommended for adoption and publication in the Manual. Following this review, material recommended for the Manual, that has been approved by the Board, will be submitted to the members of the association for letter-ballot approval or rejection, and subsequently, the reports, written discussions and results of the letter-ballot will be published in the Annual Proceedings for 1943. Revisions of and additions to the Manual (approved by letter-ballot by the members) will be issued as usual in the annual supplement to that volume.

Following are abstracts of all of the committee reports, including all of the recommendations of the different committees as modified in a few instances by the Board:

Iron and Steel Structures

J. E. Bernhardt, Chairman*

The report of this committee embraced a number of recommendations, and the submission of certain material as information, under Revision of Manual. Also, under its assignment relative to rigid-frame design, a set of specifications for the design of rigid-frame steel bridges was presented for adoption.

Revision of Manual

The committee presented for adoption a considerable number of revisions in the specifications for steel railway bridges and also minor revisions in certain other parts of Chapter 15 of the Manual. It then went on to explain that, in the interest of securing maximum economy in the use of structural steel, it had developed a schedule of unit stresses for the design of steel railway bridges which permits higher stresses than those provided for in the specifications for steel railway bridges. On the recommendation of the committee, the Emergency Committee representing the Board of Direction has authorized the publication of these higher unit stresses as an emergency provision, and they were presented in the report as information. The committee explained, however, that the War Production Board is now engaged in the preparation of emergency specifications for steel railway bridges which may, when issued, supersede the emergency provisions presented in the report.

One of the committee's assignments is to develop revised specifications for steel railway turntables. The committee pointed out that a set of such specifications was presented as information at the last annual meeting, and that since then they have been revised to include several suggested changes. The revised specifications were presented in the report for this year with the recommendation that they be adopted for publication in the Manual to replace the present specifications.

Rigid-Frame Design

Reporting on its assignment relative to rigid-frame design, the committee pointed out that last year it had presented tentative specifications for the design of rigid-frame steel bridges. During the year these specifications were revised to incorporate certain suggested changes, and, as revised, were presented in the report with the recommendation that they be adopted for publication in the Manual.

* Bridge Engineer, Chicago & Eastern Illinois.

Maintenance of Way Work Equipment

C. H. R. Howe, Chairman*

Reports were presented by this committee on 7 of its 13 assignments, including recommendations for the revision of the Manual, and final reports, submitted as information, on 6 other assignments.

Revision of Manual

Having in mind the conditions with which manufacturers and suppliers of materials are confronted because of the war, and the necessity of conserving critical materials, the committee reported that it had voted to recommend a revision in the Manual permitting the use of flexible lines with sediment bulbs for gas lines in place of copper construction. This amendment, it said, was submitted to, and adopted by, the Emergency Committee representing the Board of Direction.

The committee further reported that in its 1942 report on the color of roadway machines it had recommended that the color "federal yellow" be adopted as standard for roadway machines, and that this recommendation, along with a color plate illustrating the exact shade, be submitted this year as a revision of the Manual. It pointed out, however, that the use of the term "federal yellow" is confusing because the United States government uses several different shades of yellow, and that the color chosen by the committee, while formerly designated as "federal yellow," is now known as "standard yellow for highway signs." Accordingly, the committee recommended that the material now in the Manual giving standard colors for work equipment and motor cars be revised in such a manner as to substitute the word "yellow" for "federal yellow."

Portable Electric Power Plants and Tools

A final report, submitted as information, was presented by the committee on its assignment with reference to portable electric power plants and electrically-driven tools. This report consisted largely of a general discussion of the types and sizes of generators and tools that are applicable to and available for use in both

* Cost Engineer, Chesapeake & Ohio.

track and bridge and building work. It also discussed the considerations involved in determining the size of a generator to operate a given number of tools, and in this connection a tabulation was given, showing the power required for the operation of various types of tools. Also, the report gave consideration to the use of generators for flood-lighting purposes and discussed the labor-saving aspects of the use of power tools.

Rail Cranes on Combined Crawler and Rail Mountings

In a brief final report, submitted as information, on its assignment relating to rail cranes on combined crawler and rail mountings, the committee explained that the assignment refers to a crawler crane that is similar to other cranes except that it has retractable flanged wheels in addition to crawler treads. The committee explained that machines of this type are not now employed extensively and will not be for the duration of the war, but it added that its special features may prove attractive when its manufacture is resumed. Brief reference to the use of the unit as a rail-laying crane was included in the report.

Wire Rope Used with Work Equipment

A report of considerable scope, submitted as information, was presented by the committee on its assignment to report on wire rope used with work equipment. Following a brief discussion of the advantages of the use of wire rope with such equipment, the committee discussed the construction of wire rope, including its tensile strength, described the various strand constructions, referred briefly to factors of safety, listed the causes of failure of wire rope, discussed the application of such rope in various types of equipment, emphasized the necessity of proper lubrication, and described the procedure that should be followed in anchoring the end of a wire rope in a hitching or holding device.

Railway Owned Automotive Equipment

In a report, submitted as information, on its assignment relating to railway-owned automotive equipment, the committee explained that, because of wartime conditions, it was necessary to confine this report to a consideration of methods of keeping existing automotive units in service, at least for the duration. This problem has been aggravated, it explained, by reason of the fact that many railroads have been forced to purchase second-hand vehicles to replace trucks and cars that have become worn out. An outline giving recommended methods of maintaining automotive equipment was included in the report. The following conclusions were appended to the report:

Because of the present high peak of both freight and passenger traffic, it is of extreme importance that all so-called "off-track equipment" be maintained and kept in operation throughout the duration of the war.

If, due to neglected maintenance of automotive equipment and inability to purchase either new or serviceable second-hand equipment, it becomes necessary to revert to the old method of maintaining the track structure, bridges, buildings, etc. by transporting men and material via work train, the density of traffic under present conditions would be greatly magnified.

In addition, automotive equipment would be indispensable in rushing men, tools and material to points of emergency work in the event that the railroad right-of-way should become damaged on account of enemy air raids, etc., and it, therefore, becomes the patriotic duty of every railroad officer, through preventive maintenance, to keep the automotive fleet in operation and ready for instant service.

Weed Burners and Extinguisher Cars

In a brief final report on weed burners and extinguisher cars, the committee pointed out that the weed burners in service on the various railroads are about evenly divided between the oven or enclosed-flame type and the open-flame type, and then went on to discuss the features of these two types, especially with respect to the applications for which each type is best suited. With reference to extinguisher cars, the committee pointed out that practically all roads have their own means of extinguishing fires behind weed burners, and then described the different types of equipment that are used for this purpose.

Safety Devices for Work Equipment

The committee's assignment to investigate safety devices for work equipment was covered in a final report that was submitted as information. Following a brief review of safety developments in recent years, the committee pointed out that the greatly increased use of roadway machines in the last decade has been paralleled by a greater stressing of the importance of safety. For this reason, it said, it has not been possible to determine from the records just what effect the mechanization of maintenance forces has had on the substantial reduction in casualties that has taken place.

It was emphasized that, in line with the principle that the workmen should be given such mechanical protection against injury as is available, it is important that the nature of the roadway machines in use be examined with the thought of overcoming to the fullest possible extent such hazards as may be present in their operation. In general, said the committee, the manufacturers of maintenance machines have considered these hazards and have endeavored to furnish protection against them. Various considerations in the choice and use of safety devices on machines were then given attention, after which some of the more common safety devices were listed under three separate headings, namely, "Safety Devices Generally Required on Machines," "Devices Desirable Because of Peculiar Location, Character of Machine or Service, or Legal Requirements," and "Devices to be Used with Roadway Machines Rather than Being Applied to the Machines." A set of three conclusions was presented as follows:

1. In order to provide protection against personal injuries, the training of employes in safe practices should be supplemented by the use of suitable protective devices.

2. It is important that when a machine is purchased, the question of devices necessary to insure its safe operation be considered and if all such devices are not furnished with it, they should be provided. Similar consideration should be given to machines already in service.

3. Operators of machines and others working around machines should be trained to understand the purpose of each safety device and how it functions; and should be instructed that if these appliances are not in place or are ineffective for any reason, the machine should be taken out of service until the devices are replaced or made effective.

Yards and Terminals

C. H. Mottier, Chairman*

Reports were presented by this committee on three of its ten assignments, including two progress reports, submitted as information, and one final report with conclusions submitted for adoption.

With reference to its assignment relative to scales used in railway service, the committee pointed out that at the annual meeting in 1941 it had submitted as information a proposed specification covering hand-operated grain hopper scales and that this specification had been published in Volume 42 of the proceedings. Following publication of the specification, various comments and criticisms were received by the committee, as a result of which it incorporated a number of revisions in the specification. This year the specification was again submitted by the committee as information, with the comment that further criticism is invited to the end that the ultimate form of this material may be acceptable to all interested parties.

Modernization of Passenger Terminals

In reporting on its assignment to investigate the modernization of passenger terminals, the committee called attention to the fact that last year it had submitted a report in considerable detail, which was accompanied by a list of conclusions that were pre-

* Chief Engineer, Illinois Central.

sented as information for discussion and criticism. Pointing out that, in view of wartime conditions, the conclusions are intended as a guide for the future, rather than for immediate use, the committee submitted them again this year with the recommendation that they be adopted for publication in the Manual. These conclusions are as follows:

1. Nothing can take the place of or do as much for a favorable public reaction at a terminal as cleanliness and good housekeeping.
2. Economic considerations should never be lost sight of in studying improvements contemplated in connection with a passenger terminal.
3. Rail and bus terminals can sometimes be combined with advantage to both services.
4. Tracks and platforms must often be lengthened to take care of the longer trains now in general use. This in turn requires careful attention to revised signaling.
5. Umbrella, butterfly or other modern types of platform shelters should be considered in place of balloon train sheds when major changes are to be made.
6. The character of the country and the prevailing type of architecture in the locality should have careful attention.
7. Because of changes in habits and in facilities available for travel to and from terminals, less waiting time in the station is now the rule, but passengers expect better and more modern, though not necessarily bigger accommodations in the concourse and waiting room, when buying tickets or checking baggage, in the toilet facilities and in general service conveniences. These should be provided when major changes are made.
8. A single, combined, waiting room can be substituted to advantage for the old arrangement of two separate rooms, but a proper and attractive retiring room for women should be provided.
9. The old smoking room, which often was used largely as a loafing place for undesirables, may be abolished when extensive changes are made.
10. Substitution of a closed-in concourse, with a tight partition between it and the train shed in place of an open grill, with a sufficient supply of heat to make it comfortable for passengers in winter weather, is desirable and is becoming a general practice, as it will permit the use of the concourse as an adjunct to the waiting room. Many passengers prefer to wait where they can see the trains if they can do so without discomfort.
11. Care should be taken to make it inconvenient for non-passengers to use the concourse and passages as thoroughfares, as such use may interfere with patrons of the railroads.
12. Directional signs should be given particular attention. They should be displayed conspicuously, easy to see but not gaudy, and they should be repeated so that if a passenger going in the wrong direction misses one, another farther along will set him right. This is especially important where corridors are long and winding and facilities are at different levels.
13. Improvement at the ticket counter by the substitution of larger openings for the former narrow grilled windows or, at points where it is feasible to do so, the replacement of the windows and grills by an open counter makes for a more friendly atmosphere. Provision for protection of the money and the ticket stock should not be overlooked.
14. Substitution of modern furniture such as chairs, couches and a few tables in place of old, stiff, straight-backed benches, and the substitution of modern lighting and attractive painting with due attention to the color scheme, will transform an old type waiting room into a pleasing room at relatively small expense.
15. Generally, coin-locked pay toilets should be substituted for some of the former free toilets and, at the larger terminals at least, coin-locked dressing rooms and baths may be provided where warranted.
16. Substitution of modern heating, properly planned, will often result in a reduced cost for its operation and maintenance, as well as providing better service.
17. Adequate provision for parking private automobiles while waiting for trains should be provided if practicable.

Following its usual practice, the committee submitted as information a bibliography of published articles and papers on passenger stations and terminals; freight stations, terminals and yards; locomotive terminals and railroad shops; and rail and water terminals.

Wood Bridges and Trestles

R. P. Hart, Chairman*

Reports were presented by this committee on three of its eight assignments, including two final reports, submitted as information, and one progress report that included specifications submitted for adoption.

Design of Wood Bridges and Trestles

Reporting on its assignments to develop specifications for the design of wood bridges and trestles, the committee called attention to the fact that in 1941 it presented as information a tentative draft of such specifications. Embodying extensive revisions, these specifications were presented last year for adoption and publication in the Manual but failed to receive approval. Since then, they have been slightly rearranged and revised and this year they were again submitted by the committee with the recommendation that they be adopted for publication in the Manual. Entitled "Specifications for Design of Wood Bridges and Trestles for Railway Loading," this material appears under four general headings, namely (1) General Features of Design, (2) Loads and Stresses, (3) Unit Stresses, and (4) Details of Design. Appended to the specifications is an appendix containing six charts showing examples of the distribution of loads to piles in the bents of timber trestles.

Bearing Power of Wood Piles

In a final report presented as information, joint consideration was given by the committee to two of its assignments, namely, to ascertain the bearing power of wood piles, with recommendations as to methods of determination, and to determine recommended relationships between the energy of the hammer and the weight or mass of the pile for proper pile driving, including concrete piles. Pointing out that these subjects had been considered in a report presented by a committee of the American Society of Civil Engineers, the committee submitted as information a discussion of certain pile-driving formulas that were taken from the A. S. C. E. report. In concluding this discussion, the committee recommended continuation of the practice specified in paragraphs six and seven in the specifications for driving wood piles that now appear in the Manual. These paragraphs deal with the use of jets in driving piles.

Wood Preservation

H. R. Duncan, Chairman†

Progress reports, submitted as information, were presented by this committee on four of its nine assignments.

Service Test Records of Treated Ties

In connection with its assignment to investigate service test records of treated wood, a series of tabulations was presented by the committee showing the results of the 1941 inspection of the test tie installations that are under observation in the tracks of the Chicago, Burlington & Quincy, and of the results of the 1942 inspection of the test tracks of the Chicago, Milwaukee, St. Paul & Pacific at the Fair Grounds, Madison, Wis., and near Hartford, Wis. The data given relative to the test tracks of the Milwaukee were based on information submitted by the U. S. Forest Products Laboratory at Madison.

Destruction by Marine Organisms

In accordance with usual practice, the committee's report on destruction by marine organisms and possible ways of prevention was made up largely of individual reports on marine piling tests that are being conducted by various agencies. First, how-

* Bridge Engineer, Missouri Pacific.
† Superintendent of Timber Preservation, Chicago, Burlington & Quincy.

ever, the committee explained that, because of wartime conditions, it has not been possible to make recent inspections of certain of the test installations of marine piling. Relatively brief comments were then submitted regarding the New England and New York Marine Piling investigations, after which the committee discussed the incidence of a severe teredo attack in the harbor at Sydney, N. S. Also, a report was submitted on the service records of creosoted piles in four wharves of the Northern Pacific in the harbor at Seattle, Wash., and the results were given of recent inspections of the test installations in San Francisco Bay.

Specifications for Creosote-Petroleum Mixtures

A progress report, submitted as information, was presented by this committee relative to its assignment to develop specifications for creosote-petroleum mixtures. After a discussion of the scope of the assignment, the committee reviewed in some detail the previous reports that have been presented on this subject, and then quoted figures prepared by R. K. Helphenstine, Jr., of the Forest Service, United States Department of Agriculture, in co-operation with the American Wood Preservers' Association, to show the extent to which creosote-petroleum mixtures are used in timber treatment.

Destruction by Termites and Ways of Prevention

In a progress report, submitted as information, on its assignment to investigate destruction by termites and possible ways of prevention, the committee first pointed out that it had been decided to leave the exposure test plot at Florissant, Mo., undisturbed for another year. It then described in some detail an incident, involving the occurrence of termites in two large oak tubs placed on the terrace of a home near St. Louis, Mo., which, according to the committee, constitutes a further substantiation of the value of termite shields.

Waterways and Harbors

N. D. Hyde*

This committee presented reports on three of its eight assignments, including two final reports and one progress report, all offered as information.

Preventing Damage to Structures by Navigation

A final report was submitted by the committee on its assignment to submit recommended practices to prevent damage by navigation to: (a) Bridges—movable and stationary; and (b) piers, wharves and docks. The report was confined to a consideration of the first of these two subdivisions. The committee pointed out that three methods are commonly used to prevent damage by navigation to bridges, namely, (1) a fender system to serve as a guide to navigation; (2) visual signals; and (3) audible signals.

The greater part of the report was devoted to a discussion and description of various types of fender systems. Regarding the second and third methods of preventing damage, the committee pointed out that visual and audible protection requirements are covered by rules and regulations issued by the Bureau of Lighthouses of the Department of Commerce and by the Secretary of War, supplemented by local public authorities. It explained that variations from these rules have been allowed in some instances, such as the use of flashing light signals instead of fixed signals under mutual agreements between public authorities and the bridge owners.

Abstract of Truman-Hobbs Act

One of this committee's assignments is to prepare an abstract of the Truman-Hobbs act and to outline the procedure to be followed under the act. In reporting on this subject, the committee explained that at present there are three cases covering the reconstruction of movable bridges over navigable streams that come under the provisions of the act. In two of these instances, the bridges have been completed but no decision has yet been reached as to the apportionment of the cost. In the third instance, the project has not progressed beyond the preparation and approval of the plans and specifications. It was pointed out by the committee that the A. A. R. has appointed two committees to study the terms of this act, one looking into its engineering phases and the other its legal aspects.

Navigable Waters—Abstracts of Court Decisions

A final report was submitted by the committee on its assignment to prepare abstracts of court decisions covering navigable waterways. Referring first to a report on the subject that it had presented in 1937, the committee then devoted the remainder of its report to a brief discussion of a decision rendered in 1940 by the Supreme Court of the United States in the case of United States of America, petitioner, versus the Appalachian Electric Power Company, in which the court took a somewhat different view in regard to the question of navigability of a waterway than that expressed in previous decisions.

Waterproofing of Railway Structures

J. A. Lahmer, Chairman*

The report of this committee consisted of a progress report, presented as information, on Revision of Manual, and a progress report, also submitted as information, on its assignment to keep the association informed of developments in the waterproofing of railway structures.

Revision of Manual

Under Revision of Manual it was pointed out by the committee that the crude oils which are now being used to produce waterproofing asphalt have characteristics which make it impossible to meet the specification requirements for ductility of asphalt to be used above ground at both 77 deg. F. and 40 deg. F. without sacrificing other important properties. It expressed the opinion that the requirements for ductility at 40 deg. F. for asphalt for use above ground, as given in the A.R.E.A. specifications for membrane waterproofing, are of greater importance than those for ductility at 77 deg. F. and, therefore, that the specification requirements for ductility at 77 deg. should be waived for the duration of the war. Accordingly, the committee reported that, on its recommendation, the Emergency Committee representing the Board of Direction had approved emergency provisions amending the specifications for membrane waterproofing to eliminate the ductility requirements at 77 deg.

Waterproofing of Railway Structures

The committee pointed out that, although asphalt manufactured from Mexican crude oil can easily be made to measure up to the requirements in A.R.E.A. specifications for waterproofing asphalt, it is difficult to manufacture asphalts from domestic crudes to comply with the specifications. It also said that an objection has been raised to the use of coal tar pitch for waterproofing on the grounds that this material is too brittle at low temperatures due to the loss of volatile oils that occurs when pitch is heated to a high temperature. However, it said that the claim has been made that a coal tar pitch was being produced which is more stable and ductile than the usual run of waterproofing pitches and that this was accomplished by restoring certain of the more stable ingredients which are driven off in the refining process. In view of this situation, the committee deemed it advisable to conduct tests to ascertain (a) the characteristics of asphalts and coal tar pitches which could be obtained for waterproofing under A.R.E.A. specifications;

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and (b) the relative merits of asphalts and coal tar pitches for waterproofing railway structures.

These tests, which were undertaken in 1941, have now been completed and a comprehensive report has been prepared describing the results, but the committee feels that it is advisable to defer publication of the report until the results of the tests can be given further study. By making these tests, the committee has accumulated considerable data which, it says, may indicate that modifications should be made in the specifications. It explained also that some of the producers, who made concurrent tests of samples of the same bitumens which were tested by the committee, have suggested certain changes which seem to have merit and which will be given consideration.

Water Service, Fire Protection and Sanitation

B. W. DeGeer, Chairman*

This committee submitted reports on eight of its nine assignments, including final reports on four subjects and progress reports on four others. Of the final reports, three were submitted as information, while the fourth was offered for adoption. One of the progress reports included material recommended for adoption, while the other three were submitted as information.

Revision of Manual

In its report on Revision of Manual, the committee offered for adoption numerous changes, including deletions, additions and revisions, in material in the Manual under the heading of Water Service, Fire Protection and Sanitation.

Pitting and Corrosion of Boiler Tubes and Sheets

Reporting progress in its study of the cause of and remedy for the pitting and corrosion of locomotive boiler tubes and sheets, the committee said that it had continued its contact with the United States Bureau of Mines and with several of the industrial laboratories, with particular reference to the use of sodium nitrate as an inhibitor of inter-crystalline corrosion. Its studies have led the committee to the conclusion that, when properly used, sodium nitrate is beneficial for preventing inter-crystalline cracking, and, further, that the practical influence of sodium sulfate in preventing this trouble is of a decidedly minor character. It pointed out that a summary of work that has been done on this subject up to the end of 1941, as sponsored by the Joint Committee on Boiler Feedwater Studies, appears in Bulletin 443 of the United States Bureau of Mines. It was explained that, owing to various factors, little additional work on the subject has been done during the past year, but that in the future the bureau will keep one man assigned to the work and that test specimens for use in detectors can still be obtained through the bureau at College Park, Md.

Owing to various rulings of the War Production Board bearing on the conservation of critical materials, the committee said it seems advisable to investigate the various materials offered as substitutes for alloy nickel steel in the manufacture of boiler shell material, with special reference to the use of carbon-molybdenum steel. To date, it said, tests of embrittlement detectors have been made with only one of the carbon-molybdenum steels, in comparison with nickel and hot rolled steels, using embrittling solutions without inhibitors. According to the committee, the results indicate that the particular carbon-molybdenum steel tested did not offer any more resistance to inner-crystalline corrosion than does nickel steel.

Detectors for Locating Water Pipe Lines and Line Leaks

With reference to its assignment to investigate different types of detectors for locating water pipe lines and leaks in them, the committee submitted a final report, offered as information. It explained that the pitometer is used extensively by the larger cities as a measuring device for detecting unusual water use in a certain district, and that railways make considerable use of regular and auxiliary water meters in the detection of leaks, noting that the reading of master meters in terminals at regular intervals affords a ready means for noting any unusual discharge.

The committee explained that there are two general types of detectors in use, the visible and the audible, and described the essential principles of both types. According to the committee, the best-known form of visible detector is the "dipping needle" which operates on the magnetic principle, and a simple form of audible detector is the "water phone." In addition to these simple forms of detectors, it explained that there are many elaborate sets on the market and that these usually operate on the radio principle. The committee then explained in some detail the general procedure followed in locating pipe lines or leaks.

Governmental Regulations Pertaining to Railway Sanitation

A progress report, offered as information, was submitted by the committee on its assignment to report action taken by federal or state authorities with reference to regulations pertaining to railway sanitation. It explained that activity in this direction during the past year was concerned primarily with three subjects: (1) Specifications covering drinking-water fountains; (2) revision of federal standards for drinking water; and (3) the development of a sanitation manual for land and air conveyances operating in inter-state traffic. With reference to the first subject, it reported that, under date of January 14, 1942, the American Standards Association, of which the A.A.R. is a member, approved and published revised specifications for drinking fountains which were sponsored by the United States Public Health Service. These specifications were given in the report.

With reference to the second subject (drinking-water standards) the committee reviewed developments leading up to certain revisions that had been made in these standards, and listed the principle changes. It explained, however, that the new standards are of more concern to municipalities than to the railroads because it so often happens that water used for drinking purposes in railroad service is obtained from city supplies which must conform to the new standards.

Regarding the third subject (sanitation manual for land and air conveyances operating in inter-state traffic) the committee reviewed the activities leading up to the development of such a manual under the auspices of the Public Health Service. The committee explained that the features of the manual coming under the jurisdiction of the engineering and maintenance departments are: Section 1, Sources of Water; Section 2, Item 1, Hydrants; Section 3, Item 3, Impure Water Supplies; and Item 4, Platforms at Servicing Areas. The committee then quoted the provisions under each of these headings that must be complied with by the railroads, and discussed the difficulties of carrying out certain of the requirements. It also listed other factors covered in the new manual.

Fire Protection and Insurance Section, A. A. R.

In its report on the principal current activities of the Fire Protection and Insurance Section of the A.A.R., the committee first discussed the importance of adequate fire protection during wartime, and noted that the National Fire Protection Association has issued many pamphlets for training the auxiliary firemen needed in wartime. The recommendation was made by the committee that railway fire protection engineers secure copies of certain of these pamphlets.

In a brief discussion of fire losses, the committee pointed out that the trend toward reduced fire losses that had prevailed during the last ten years was reversed in 1941 when the loss due to fire amounted to $7,457,758, an increase of 93 per cent, as compared with the average loss for the last nine years. Paradoxically, while the average loss per fire for 1941 ($1,605) was a record high, the average number of fires per mile of road (0.017) in that year, was a record low. This, said the committee, would indicate that the fire losses are occurring in large units.

In reporting on its assignment to develop specifications for welded steel tanks for water service, the committee recalled that such specifications were presented for adoption at the 1942

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convention but that, as a result of a discussion at that meeting, they were not accepted. During the year, the committee made certain revisions in the specifications, and in its report for this year it again presented them for adoption and publication in the Manual.

Water for Diesel Locomotives and Air Conditioning

A final report, offered as information, was submitted by the committee on its assignment to investigate the use of water for Diesel locomotives and air conditioning. With reference to water for Diesel locomotives, the committee reported that a survey had shown that methods in use for treating water used in large stationary Diesel installations are not entirely satisfactory for use in conditioning water for use in Diesel locomotives. It is evident, it said, that the equivalent of distilled water with a satisfactory corrosion inhibitor is required for this latter equipment. The committee then referred briefly to various methods of treatment that have been given consideration, and described the results that have been obtained with each of them.

Turning to the matter of treating water for air-conditioning systems, the committee said that in certain types of such systems water may be required to wash the air, and that to prevent the air from acquiring a disagreeable odor during the washing process, a finely-divided solid absorbent, such as activated carbon, may be used. It said that water required for air-conditioning systems should preferably be treated by an approved method to eliminate encrusting solids and prevent corrosion, and that such systems should be drained and cleaned at frequent intervals.

Improved Pumping Equipment and Automatic Controls

A final report, offered as information, was submitted by the committee on its assignment to investigate improved pumping equipment and automatic controls. The committee first reviewed briefly the various reports that it has submitted on this and allied subjects since 1901, and then pointed out that, since that time, great improvements have been made in both pumping equipment and automatic controls. The committee pointed out that the standards of the Hydraulic Institute classify pumps into four general groupings, namely, centrifugal, rotary, reciprocating and deep-well. It then proceeded to trace the development of each type of pumping equipment from the beginning, and described the recent improvements that have been made.

With reference to automatic controls, the committee said that there are four primary types, namely, (1) float, (2) flow, (3) time, and (4) pressure devices. Each of these types was described briefly, and their applications in rail service discussed.

Report on Track

W. G. Arn, Chairman*

Progress reports were submitted by this committee on six of its nine assignments, of which five were offered as information, while under Revision of Manual various emergency revisions of specifications were presented and certain other recommendations were made.

Revision of Manual

In the chapter on Track in the Manual, there is now a tabulation headed "Turnouts with Straight Switch Points (AREA)" which gives speed through the various turnouts. While it is not definitely stated in the Manual, the committee pointed out that the speeds shown in this tabulation are for lateral turnouts. In order to show permissible speeds through equilateral turnouts with straight switch points, the committee submitted a new tabulation containing two columns showing speeds, one for lateral turnouts and the other for equilateral turnouts, which it recommended for publication in the Manual in place of the present tabulation. In addition, it presented definitions of lateral and equilateral turnouts for insertion in the Glossary under the present definition of turnout.

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The committee explained that, in the interest of conservation of critical materials and simplification of design, special meetings of a necessarily restricted number of committee members have been held in order to consider what temporary amendments in some specifications or designs would be most necessary and helpful to the war effort. As a result of these meetings, various recommendations covering the adoption of emergency provisions in existing specifications were proposed and adopted by the Emergency Committee representing the Board of Direction. Presented as information in the report, these recommendations included emergency provisions in the specifications for medium-carbon steel tie plates; high-carbon steel track spikes; hot-worked, high-carbon steel tie plates; and soft-steel cut track spikes. In addition, the report contained a list of the track plans that the committee had recommended be suspended for the duration of the war.

Also presented by the committee were the emergency provisions relative to the design of tie plates that were adopted on June 15, 1942. Included in this part of the report were a number of drawings of tie plates for 112-lb and 131-lb. rail, showing the characteristics specified in the emergency provisions. As the final feature of the report, the emergency specifications for soft and medium steel tie plates that were adopted on December 31, 1942, were printed in full. These emergency specifications supersede for the duration the specifications for medium-carbon steel tie plates that were adoptd in 1942.

Fastenings for Continuous Welded Rail

A progress report, submitted as information, was presented by the committee on its assignment to investigate fastenings for continuous welded rail. Listing the various forms of fastenings that have been applied in connection with test installations of butt-welded rail, the committee pointed out that practically every kind of fastening has been used in these various installations. The committee then discussed the prevalence of "frozen" joints and pointed out that where this condition prevails, it produces continuous rail just as effectively as if the joints were welded. This means, said the committee, that such track serves as a test of fastenings for continuous rail.

Following a brief discussion of the manner in which frozen joints can be detected, the committee considered briefly the occurrence of sun kinks in welded rail, pointing out that they apparently do not occur in such rail any more frequently than in track having standard joints. That the sun kinks reported were not due to the type of fastenings used was indicated, according to the committee, by the fact that the rails remained in their relative positions and took the ties with them, just as in sun kinks in jointed track. Therefore, it reasoned, the sun kinks could not be due to the kind of fastenings used, although they might be attributable to the lack of rail anchors. Appended to the report was the following conclusion: "As the test installations of continuous welded rail have increased, their performance increasingly indicates that the same kind of fastenings which have been found most successful in jointed track are dependable for use with continuous rail."

In a brief report on its assignment to develop plans and specifications for track tools, including their repair and reclamation, the committee explained that it is directing its attention to that portion of its assignment relating to means for making repairs to track tools to keep them in serviceable condition until they are worn to the limits indicated on the plans. Included in the report was a brief list of tools, showing the procedure to be followed in repairing them, which was submitted by the committee for comments, suggestions and criticisms.

Prevention of Damage Due to Brine Drippings

Reporting progress on its assignment to investigate means of preventing damage to tracks and structures due to brine drippings, the committee pointed out that, in preceding reports, various laboratory and experimental work has been dsecribed, which was aimed at developing a corrosion inhibitor to be added to the salt used in refrigerator cars to neutralize the corrosive action of the brine drippings on the equipment and tracks and

bridges. In this work it was found that a small quantity of sodium dichromate and soda ash, if added with the salt, would give very effective protection in laboratory tests and in such track tests as it was practical to carry out.

Steps were taken to make experimental applications of the inhibitor in regular service and a car was selected for this purpose. However, the shipper objected to the use of the inhibitor because of its toxicity, and it was not possible to carry out the test. The entire matter was then referred to the Medical and Surgical section of the A. A. R., as the result of which the chairman of that section advised that there appeared to be no reason why the inhibitor could not be used safely, providing means were taken to separate it from the car contents so that contamination would not be possible. On further investigation it was found that the only practicable means of accomplishing this objective is to add the inhibitor to the brine drippings after the brine has left the car interior. This required that the brine drippings be passed through some suitable filter to pick up the necessary inhibitor concentration. Plans have been made by the committee for experimental applications during the coming year of filters designed to accomplish this purpose.

Welding of Manganese Castings in Special Trackwork

In connection with its assignment to study the welding of manganese castings in special trackwork, the committee presented a progress report of an investigation carried out by the engineer of tests of the Chicago, Milwaukee, St. Paul & Pacific in co-operation with the research engineer of the Engineering division, A. A. R. In connection with this investigation, a field test installation of 24 special manganese frogs was installed in a track of the Milwaukee near Mannheim, Ill., in November, 1939. It was contemplated that when these frogs should become so battered by traffic as to require welding, they should be built up in accordance with an established program in order to determine the relative merits of various welding techniques.

When these frogs were inspected in the latter part of 1941, it appeared that field welding would probably be required in the latter part of 1942 or early in 1943. It was decided that valuable information would be afforded for guidance in making the field tests by a laboratory investigation to study the microstructure obtained with the various techniques proposed for the welding program. Such an investigation, therefore, was made in several parts. In the initial phase of this work, sections were cut from two scrap frogs which had been removed from track after several years' service and which had been repaired by welding several times during their service lives. Photographs and photomicrographs of the various sections were taken and were presented in the report, together with detailed explanatory captions.

The second part of the investigation involved the making of test welds in the laboratory with various types of welding rods in general accordance with the proposed procedure for the field welding program. These experimental welds were made on 1-in. by 2½-in. by 10-in. bars cast especially for this purpose, these bars being of the chemistry and heat treatment generally used for manganese trackwork. In the investigation, photomicrographs were made of one rod of each of the types used, also multi-pass welds were made on the special bar castings with and without peening between passes, and sections were cut through the welds for hardness tests and microscopic examination. Photomicrographs of the welding rods and of the welded sections were reproduced in the report, together with a table giving hardness readings of the various welds in each 1/16 in. of depth down through the weld into the base metal.

Other phases of the laboratory investigation included the making of tests to study the effect of high welding current, to ascertain the effects on the base metal of the heat produced in the welding process, and to determine the effect of the use of small diameter welding rods.

Bolt Tension Necessary for Proper Support of Rail Joints

In connection with its assignment to determine the bolt tension necessary for the proper support of rail joints, the committee submitted a progress report of the test installations that it has under observation on the Chicago, Milwaukee, St. Paul & Pacific; the Chicago, Burlington & Quincy; the Denver & Rio Grande Western; the Pennsylvania; and the Erie. Each of the test installations was described briefly, after which data were given for each test section, showing the loss of bolt tension under traffic and the change in the out-to-out measurements of the joint bars.

That part of the report giving data on the Burlington installation included a description of some tests that were made in the laboratory on that road during the year to determine the effect of lubrication on the slippage resistance of joint bars. For these tests, two rail ends were machined so that they could be assembled with a pair of joint bars with a desired bolt tension, after which they were placed in a testing machine and measurements taken to determine the forces required to slip the rail ends in the joint.

These tests indicated that lubrication of the fishing surfaces materially lowered the joint slippage resistance, at least initially. However, the committee feels that for this information to be of much practical value, slippage resistance should be measured at the time the bars are applied and again after various periods in service.

The following conclusions were appended to the report:

1. The purposes of providing tension in track bolts are:
   (a) To draw the joint bars into place when they are first applied. An initial bolt tension when bars are first applied of from 20,000 to 30,000 lb. is of value in overcoming the roughness of the fishing surfaces, thereby providing a proper seating of the bars.
   (b) To hold the joint bars in place throughout actual service conditions and to produce an integral action of the two bars of a joint in resisting bending in the vertical or horizontal planes. A minimum bolt tension of 10,000 lb. for the long-toe joint bar, or 5,000 lb. for the short-toe joint bar is sufficient to accomplish these purposes.
   (c) To provide sufficient reserve tension to carry over the period between tightenings. This requires that the applied tension shall be high enough to withstand the loss in bolt tension under traffic for the period between tightenings and still be sufficient at the end of the period to insure proper action of the joint bars.
   Bolt tension loss is relatively rapid immediately following the application of joint bars until the mill scale has disappeared from the fishing surfaces, and averages from 5,000 to 10,000 lb. the first month. After the second month, the rate of bolt tension loss averages from 500 to 1,000 lb. per month. Loss of tension is not uniform at each joint and some bolts may lose twice the above amounts; others, scarcely any. Bolt tension loss is principally due to a decrease in distance between the two bars of a joint as a result of fishing surface wear.
   (d) To permit slippage of the rail ends within the joint bars with temperature change. The slippage resistance of a rail end within its joint bars is approximately equal to the sum of the tension in its two (or three) bolts. Thus in general, high bolt tension produces high joint bar restraint and vice versa.

2. The following practices are recommended to accomplish these purposes:
   (a) The applied bolt tension should be within a range of 15,000 to 25,000 lb. This meets all requirements adequately. The variation in thread friction of individual bolts and the lack of any practical means of applying a known tightening torque in track makes a precise establishment of a "proper applied bolt tension" of little real value.
   (b) Track bolts should be tightened not sooner than one month, nor later than three months, after the joint bars are applied, and at intervals of one year thereafter. More frequent tightening is unnecessary and therefore uneconomical. Less frequent tightening requires too high an applied bolt tension to carry over the longer period.
   (c) Bolt threads should be treated with a corrosion resistant lubricant prior to the application of the nuts. This will reduce the variation in thread friction and promote uniformity of tension obtained.

Report on Buildings

A. B. Stone, Chairman*

Progress reports were presented by this committee on six of its eight assignments, one of which contained material that was recommended for adoption and publication in the Manual, while the other five were submitted as information.

Specifications for Railway Buildings

Reporting on its assignment to develop specifications for railway buildings, this committee called attention to the fact that at the 1942 meeting it had offered specifications covering the use of welded structural steel and iron in buildings. In its report for this year, the committee recommended that these specifications be adopted for publication in the Manual.

Calling attention to the fact that, under date of September 10, 1942, the War Production Board had issued emergency specifications covering the design, fabrication and erection of structural steel for buildings, the committee reported that, on its recommendation and with the endorsement of the Emergency Committee on Structural Problems, the Emergency Committee representing the Board of Direction had authorized the publication of an emergency provision specifying that the specifications for buildings for railway purposes (structural steel and iron) be superseded for the duration by the War Production Board's emergency specifications.

Refrigerator Equipment and Cold Storage Houses and Rooms

A comprehensive report, offered as information, was submitted by the committee on its assignment to investigate refrigerator equipment and cold storage houses and rooms. This report first described the characteristics of modern refrigerating systems and pointed out that, in most systems of this type, the compressor and condenser, along with the standard accessories, are mounted on a single frame and constitute the condensing unit. Pointing out that the type of condenser used depends upon the method of keeping the condensing surfaces cool, the committee went on to describe the features and characteristics of the different types of condensers in use, namely, air-cooled, water-cooled and evaporative condensers.

Turning to the subject of cooling units, the committee stated that this term is an all-inclusive one designating a device used for the purpose of absorbing heat from a space or liquid and described the two general types of such units, namely, (a) evaporators, and (b) cooling coils or tanks. Discussing the application of cooling units, it said that their use in refrigeration work can be divided into three general classes: (1) To cool air; (2) to cool liquids; and (3) to freeze liquids or solids. A brief discussion was included of the first of these applications. The subject of defrosting was then taken up and the various methods of performing this operation were listed and described, after which the committee discussed various defrosting problems and described the conditions under which automatic defrosting is not practicable.

After a brief discussion of humidity control, the committee took up the question of prime surface cooling units, after which it discussed such subjects as coil design; refrigerant control; the application of prime surface cooling units in cooling air; the location of pipe cooling coils or evaporators; brine tanks; the application of prime surface cooling units to the cooling of liquids; duct air distribution; plate-type cooling units; water supply; cooling towers; and the treatment of condensing water.

Modernization of Station Buildings

An extended discussion, presented as information, was submitted by the committee on its assignment to study the modernization of station buildings. In presenting this report, the committee expressed its realization that, except for extraordinary cases, the alteration and improvement of existing passenger stations, or the construction of new stations, is now prohibited, but went on to say that transportation developments resulting from wartime conditions have given rise in not a few instances to the necessity for providing new or additional passenger station facilities at certain locations. It explained, therefore, that the present report was for the purpose of providing a record of the modern trends that were interrupted by our entry into the war, as well as to furnish information that would be of value in the construction of such emergency facilities as are currently required. The report of the committee was divided into six divisions, namely, general, floor-plan considerations, interior remodeling, heating, furnishings, and exterior remodeling.

Fueling Facilities for Diesel Locomotives

A progress report, submitted as information, was presented by the committee on its assignment to investigate the design of fueling facilities for Diesel locomotives. The committee first pointed out that fueling stations for servicing such locomotives are of two types, namely, terminal and roadside. The terminal facility is, it said, not ordinarily designed for rapid fueling, whereas the roadside station must be equipped with pumps capable of delivering hundreds of gallons of oil within a short stopping period.

Taking up first the design of roadside stations, the committee discussed such subjects as delivery speed, friction loss between the oil storage reservoir and the final point of discharge, bulk oil storage, pumps and motors, meters and appurtenances, delivery lines, delivery from the oil main to the Diesel unit, and motor controls. In a brief discussion of terminal fueling facilities, the committee pointed out that the equipment required at such stations is essentially the same as that used at roadside facilities except that it is ordinarily designed for more modern rates of delivery.

A comprehensive progress report, offered as information, was submitted by the committee on its assignment to investigate the design of shop facilities for Diesel locomotives. The committee first pointed out that, with Diesel locomotives now being used extensively in both switching and road service, the problems of the adequate maintenance and repair of such locomotives have presented new situations to the railways, which have demanded attention in the interest of securing the maximum availability of this type of power. As a background for the remainder of the report, the committee discussed the character and type of repairs required by Diesel engines, and outlined the considerations affecting the facilities to be provided.

Pointing out that, in general, the present Diesel locomotive repair facilities of the railroads can be divided into two general classifications—main or heavy shopping points, and running repair points—the committee proceeded first to a discussion of the facilities required at shops of the former type. However, it pointed out that at present no road has provided within its Diesel maintenance facilities equipment for handling all classes of repairs to the locomotive running gear, superstructure and certain locomotive parts. After a general discussion of the requirements of heavy shopping points, the committee then gave consideration to such subjects as building layout and construction and the equipment required, including overhead traveling cranes and that needed for changing wheels and trucks.

Turning to the subject of running repair facilities, the committee said that Diesel shops now in use for making what are classified as running repairs differ from the heavy repair shops in few respects as to the character of the facilities provided, the major difference being in the extent of the equipment needed. This part of the report included reference to the need for sealing off Diesel shop areas from adjacent steam locomotive facilities, and the different types of steps and platforms used to give access to various parts of the locomotives.

The remainder of the report was devoted to a description of Diesel locomotive repair facilities that have been provided by the Atchison, Topeka & Santa Fe, the Chicago, Rock Island & Pacific and the Chicago & North Western.

Use of Substitutes for Critical Building Materials

In a progress report, submitted as information, on its assignment to study the use of substitutes for critical building materials, the committee pointed out that while such materials can

* Assistant Chief Engineer, Norfolk & Western.

be conserved by the deferment of work requiring them, the heavy transportation load that has been imposed on the railroads by wartime conditions has required that at least some building construction, largely in the nature of extensions and enlargements, be carried out. Included in the report was a list of critical materials that, if at all possible, should not be used, and also a list of building materials that are in the unrestricted class. Reference was also made to the fact that in some cities building codes regulating the use of materials and methods of construction have been partially suspended for the duration of the war, thereby allowing the substitution of materials and methods heretofore barred. Opportunities for the salvaging of materials were discussed, after which a list of possible substitutions was presented. In closing this report, the committee emphasized that building men, in their zeal to co-operate with the war effort, must not lose sight of the important factors of safety, fire hazard and sanitation.

Uniform General Contract Forms

J. S. Lillie, Chairman*

The report of this committee was confined to one of its two assignments, namely, to prepare a revision of the form of agreement for the purchase of electrical energy for other than traction purposes. In considering this subject, the subcommittee assigned to it collaborated with a subcommittee representing Committee 1 of the Electrical section of the A. A. R. in the development of a revised form of the agreement, which was presented as information to the Electrical section in October, 1941, and to the A. R. E. A. in March, 1942. As the result of comments received from representatives of both sections, the collaborating committees agreed to a number of revisions which were incorporated in the form. As revised, the form was presented this year with the recommendation that it be adopted to replace the form of agreement bearing the same title which now appears in the Manual.

Co-operative Relations with Universities

Elmer T. Howson, Chairman†

In a foreword to this committee's report it recalled that, in its report of two years ago, it had stated that "in a way, the work of this committee is less direct and immediate in its objectives than that of most of the other committees of this association. It is not dealing with materials or detailed practices of working; neither is it concerned with the immediate present. Rather, it is dealing with a problem of management, the full impact of which will not be felt for some years. Its work is, however, of fundamental importance to the permanent well being of the railway industry." Events of the past year, it was stated, have given this statement new and added significance, and there has arisen a growing appreciation of the necessity of looking to the days after the successful termination of hostilities and beginning to plan the measures that must then be taken to meet the post-war problems and opportunities.

The committee then referred with gratification to the appointment by the Association of American Railroads of a committee to consider the conditions and problems that will confront the railways when hostilities have ceased, and to devise ways to solve those problems in order that the industry may be prepared, when that day arrives, to put those solutions into effect without uncertainty or delay. It expressed the opinion that no problem is more important to the railway industry than that of insuring that it has adequate leadership, for the railways will face new and more intensive competition than ever before experienced. The committee feels that its work comprises an important contribution to this postwar preparation of the railways, and recalled that in previous reports it had pointed out that in recent years a larger proportion of the more promising young men are enjoying the privileges of college training than ever before and that the railways have failed to an increasing degree to meet the competition of other industries for these young men, and, further, that an increasing number of the colleges and universities are openly discouraging their students from preparing themselves for railway service. By its activities the committee "hopes to bring about a realization on the part of railway managements of the need for devising means to attract into the railway industry its full share of the most capable young men and a similar appreciation among college and university authorities that the railways offer a promising future to a fair proportion of their students. "This," it believes, "constitutes one approach, and a very important approach, to the post-war preparations of the railroads."

Progress reports, presented as information, were submitted by the committee on three of its five assignments.

Acquainting Universities and Colleges with A. R. E. A.

One of the assignments of the committee is to call to the attention of universities and colleges such information and conclusions developed by the association as are thought to be of special interest or value to them. In a progress report on this subject, the committee reported that it had sent a letter to a selected list of universities and colleges describing the work of the association and enclosing a copy of the committee's report for 1942. This letter expressed the belief that co-operation between (a) the colleges and universities and (b) the railroads could be of great value to the railroad industry and to the student who is interested in railroading as a career.

Explaining that the letter drew replies from officers of 40 educational institutions, the committee expressed the opinion that the number of these replies and the length to which so many of the educators went in describing their experiences in training young men for railway service and in outlining their views regarding the relative attractions of the railways and other industries to young men looking for opportunities for life work, afford a comprehensive cross-section of the attitude that prevails among college and university authorities. These replies, it said, show such a decrease in interest in the preparation of young men for service with the railways and such failure among the railways in meeting the competition of other industries for the more promising young men as to provide cause for serious concern among those who are interested in the future of the railway industry. At the same time it was noted that the letters revealed a latent friendliness toward the railways among most of the educators, and a willingness to meet them halfway in correcting the present trend if and when the railways show corresponding interest.

Expressing the belief that they would be informative and helpful and provide much food for thought, the committee presented abstracts of pertinent parts of 16 of the replies. In a closing paragraph the committee expressed recognition of the fact that, because of wartime conditions, the normal trend of civil pursuits has been fundamentally modified for the duration and that the imperative attention that is required for the training of our men for the armed forces has temporarily interrupted the normal course of events leading to a railroad engineering career. However, the committee feels that the material presented in its report should be kept as reference so that, upon our return to a more normal life, it can be reviewed with benefit.

Value of a Technical Education

An extended progress report, the third to be presented on this subject, was submitted by the committee on its assignment to develop means of bringing to the attention of railway managements the value of a technical education as a qualifying factor for young men desiring to enter railway service with a view to advancement. Reviewing its previous reports on this subject, the committee pointed out that the first report, presented in 1941, was designed to indicate why railway managements should be interested in giving employment to desirable college men, and to give the candidates for such employment a clear idea of what management expects of and offers to them; while the second report, presented last year, developed the fact that there is a recognized demand for such men, and gave the

* Property and Tax Commissioner, Grand Trunk Western
† Vice-president and Western Editor, *Railway Age*.

reasons for the demand and the extent of its reflection upon the engineering colleges.

This year the committee offered an extensive review of the attitude taken by industry generally toward the employment of college men. In obtaining information for this review, the committee contacted a wide range of industrial groups, including the steel, chemical, automotive, radio, telephone, airplane, electrical equipment, mining and smelting, retail merchandising, oil, textile, machinery, power, aviation, machine tool, arms and munitions, scientific instruments, banking and construction industries.

Pointing out that the information presented was obtained prior to the beginning of the war, the committee said that it may be considered as giving a picture of the attitude of industry during normal times, and that it is not colored by the abnormal situation due to wartime conditions that prevails today. The survey covered all general features of the recruiting programs of the various industries, and the information obtained was presented in the report under three general headings, namely, (1) Preliminary to Employment; (2) At Time of Employment; and (3) Following Employment. The report is made up largely of quotations from communications and literature obtained from the various companies contacted in the survey.

Use of University Facilities for Research Work

A brief progress report, offered as information, was submitted by the committee on its assignment to develop means whereby facilities of the universities may be made more directly available for research work of the association and the railway industry. In its investigation of this subject, the committee sent a questionnaire in September, 1940, to 125 colleges and universities in the United States requesting data as to (1) their facilities for research, (2) the fields in which they are best equipped in personnel, experience, and equipment, (3) the projects under way or completed recently, (4) the work done in recent years for, or of special interest to, the railroads, and (5) whether they would be interested in doing more work along railroad lines.

The substance of replies received from 40 of the schools circularized was reviewed briefly by the committee, after which it explained that its intention is to present a final report in the form of a catalog or directory of the facilities available and the work done in the laboratories of the leading schools, in order that this information may be available to any railway officer confronted with a specific problem. However, for various reasons given in the report, it has not been possible as yet to prepare this directory. Concluding its report, the committee expressed the view that, in connection with the careful study that is now being given in the railroad industry to the post-war problems that will confront them, full advantage should be taken of the research facilities of the railroads and the universities in attacking these problems.

Economics of Railway Labor

H. A. Cassil, Chairman*

Reports were presented by this committee on 7 of its 11 assignments, of which 5 were final and 2 were progress reports. All of them were submitted as information.

One of this committee's assignments is to investigate the methods of railroads that have made marked progress in reducing the amount of labor required in maintenance of way work. This year the subcommittee reporting on this subject devoted its report to an analysis of the methods of the Illinois Central System, which, it said, is one of the railroads which have made progress in the reduction of labor requirements during the last 15 years. According to the committee, the factors that have brought about this reduction are: (1) Physical improvement of the roadbed and track; (2) better organization of the maintenance forces, as reflected in a reduction of the number of divisions and sections; and (3) the mechanization of operations that formerly were either accomplished by hand labor or were not undertaken. Discussing the difficulties of determining the effects of these different factors, the committee said that statistical methods for doing so are available but that data in the required form are lacking.

However, stating that it is possible to give an idea of the over-all results obtained and to show how the picture has changed during the last 15 years, the committee presented four tables giving trends on the Illinois Central during that period in man-hours, traffic, track-material renewals, and mechanization. Discussing the information given in these tables, the committee pointed out that it shows that man-hours in roadway maintenance were reduced in 1941 to about one-fourth of the 1927-1929 level, while in track maintenance the number of man-hours was about one-half of the 1927-1929 figure. It then went on to show what trends occurred in traffic volume, replacements and mechanization while the reduction in man-hours was taking place. This was done with the help of three charts, one of which presented graphically the information given in the four tables, while the other two were for the purpose of showing the effect on man-hours of the mechanization of roadway and track maintenance operations. Appended to this progress report, which was presented as information, was the following conclusion: "This analysis of the Illinois Central maintenance of way work indicates the economies in labor that may be accomplished by increased mechanization of labor forces and increased intensity of use of roadway machinery."

Providing Section Gangs with Labor-Saving Machines

One of the assignments of this committee is to investigate the labor economies to be secured by providing section gangs with labor-saving machines, and to determine the minimum size of the gang to be so equipped. In a final report, which was submitted as information, the committee first discussed briefly the greater need for mechanization that has arisen because of the wartime shortage of labor. It has found, however, that the equipping of regular section gangs with power tools has not progressed to any considerable extent, largely because of the investment involved and the difficulty of obtaining a sufficient number of days work from each tool during the year to justify its purchase. Nevertheless, it has noted a definite trend on some roads toward the assignment of certain mechanical tools to regular section crews.

Included in the report was a list of the labor-saving devices that have been assigned to section gangs by the railroads represented on the committee. The extent to which these various machines have been used was discussed, after which summaries were presented to show the savings that have accrued through the use of some of the tools listed. After considering briefly the size of gangs that are used with different machines, the committee ended its report with the following conclusion: "Many labor-saving devices will effect economies that justify their assignment to section crews, and the present labor shortage makes the consideration of such assignment important. Intensive use of such devices will yield large savings in labor."

A final report, submitted as information, was presented by the committee on its assignment to determine what labor economies can be achieved by building up and reconditioning frogs and switches in track rather than at some central point. In its investigation on this subject, the committee reported that it had received valuable information from 22 representative railroads throughout the United States and Canada, operating a total of approximately 134,000 miles of lines. The report was devoted largely to a brief discussion of this information, including a list of the reasons why some of the railroads feel that, in general, greater economy results when frogs and switches are reconditioned in track than at some central point. Appended to the report were a number of conclusions giving the committee's findings.

Location of Section Gang Headquarters

The committee submitted a brief final report, presented as information, on its assignment to report on the economical location of section-gang headquarters with respect to the assigned territory. The first consideration in establishing section headquarters, according to the committee, is to fix the location so that the gang

* Chief Engineer, Pere Marquette.

can devote a maximum amount of its time to constructive work, thereby reducing to a minimum the amount of time consumed in traveling to and from the job. Where the gang is assigned a fixed portion of the line, the committee is of the opinion that the headquarters should be located as near the center of the territory as possible. However, it reported that, on roads where it is a major duty of the section gang to patrol a specified portion of the line and make minor repairs, it is the practice to locate the headquarters at one end of the section. Adherence to these general rules, said the committee, may be modified by local conditions, such as the availability of housing facilities for the men, or the existence of interlocking plants, yards or other facilities that require special attention.

Stabilization of Labor During Summer and Winter Periods

Reporting on its assignment to determine the progress that has been made in stabilizing maintenance of way and structures labor during the summer and winter periods, the committee said that it had received reports on this subject from 47 roads in the United States and Canada. Summarizing the information received, the committee said that of the railroads replying, 14 had stabilized their maintenance of way and structures forces, 12 had stabilized part of their forces, 2 had stabilized their forces on a seasonal basis, and 19 had not stabilized their forces. The report was devoted largely to a presentation and discussion of the information that the committee had received from the various railroads, but also included a discussion of the effects of wartime conditions on the stabilization of forces. This was a final report, submitted as information, and appended to it was a set of five conclusions:

A final report, presented as information, was submitted by the committee on its assignment to investigate the economies that may be expected to result through the maximum utilization of roadway machines and work equipment. This subject, said the committee, naturally divides itself into three parts, namely, (1) measures which will secure maximum utilization of equipment; (2) economies effected by double shifting; and (3) multiplicity of use of equipment. Following a brief discussion of these different aspects of the subject, the committee presented a number of examples of how individual machines can be used for a variety of purposes. It concluded that "Economies possible through the maximum utilization of roadway machines and work equipment may be realized by double shifting and by using them for purposes other than those for which they were designed."

Increasing Labor Supply to Overcome Acute Shortages

A comprehensive report, presented as information, was submitted by the committee on its assignment to investigate means of increasing the labor supply for maintenance of way work to overcome acute shortages brought about by wartime conditions. Much of the report was based on information received, as of October 1, 1942, from chief engineers and engineers maintenance of way of 37 roads having a total of 213,179 miles of lines reaching into every section of the United States and Canada. According to the committee, this information showed that, as of that date, there was already a universal, and in some sections, critical, shortage of extra-gang track labor, but that the situation with respect to other categories varied rather widely in different sections of the two countries.

The report then discussed in some detail the situation with respect to the availability of various categories of labor in different sections of the country. Next, the committee discussed the lack of reserves of labor in certain sections, and explained that the present shortage of labor is caused in large part by the need for additional forces to carry out the larger maintenance programs that have been made necessary by substantial increases in traffic. For this reason, it said, maintenance officers have two problems with respect to maintaining their forces numerically—that is, to fill vacancies and to augment their forces as may be necessary to accomplish the work that must be done to insure uninterrupted movement of an unprecedented volume of traffic. The information received by the committee indicated that the shortage of labor has grown worse since it became first apparent early in 1942 and that, rather than showing any improvement, there is every evidence that the situation will become still worse, the prospect having been made darker by the recent law drafting men of 18 and 19 years.

Following a brief discussion of the effect of wages on the problem, the committee presented a lengthy discussion of the various measures that are being taken by railroads to attract and hold men, including intensified solicitation and adequate housing and food. The prospects of getting men deferred were also considered, after which the committee discussed the extent to which various railroads are tapping new supplies of labor. One such source is made up of pensioners available for recall. Another expedient is the relaxation of age limits and physical standards when hiring new men, and a third is the use of women to fill vacancies.

The committee proceeded next to describe the various measures that were taken during World War I to solve the labor problem. Following this, it discussed the conditions affecting the needs for labor at the present time and discussed the effectiveness of the various measures that are available to cope with the problem in its present form. The report also included a brief review of the measures that the railways of England have adopted to overcome their acute shortage of man-power.

In a summary of its report, the committee presented the following list of measures to meet the emergency that it feels warrant consideration:

1. Extension of the working day to nine or preferably ten hours.
2. Extension of the working season by maintaining a more uniform working season throughout the year.
3. Relaxation of the age limits.
4. Relaxation of physical requirements.
5. Intensified solicitation for labor.
6. Utilization of Federal Employment Service.
7. Better housing and better food in labor camps.
8. Requests for deferment of key men from military service.
9. Recall of pensioners.
10. Retention in service of employees reaching retirement age.
11. Wider and more intensified use of power machines and tools.
12. Wider use of women in jobs for which they are fitted.
13. Install training courses for foremen and skilled workers.
14. Eliminate non-essential work.

Economics of Railway Location and Operation

M. F. Mannion, Chairman*

Reports were presented by this committee on 7 of its 13 assignments, including 4 progress reports and 3 final reports. Of the four progress reports, three were submitted as information, while the other contained recommendations regarding Manual material. All three of the final reports were offered as information, except that one of them embraced matter submitted for publication in the Manual.

More Intensive Use of Existing Railway Facilities

The committee's report this year on its assignment to investigate methods for obtaining a more intensive use of existing railway facilities was devoted to a presentation of specific instances where changes in facilities and methods of operation have made possible a more intensive use of railway lines. In all these instances, train movements were expedited and the capacities of the facilities to handle transportation were increased. Five examples were described as follows: (Case A) Providing for effective utilization of larger locomotives on a single-track line by respacing and lengthening passing sidings, installing high-speed turnouts and modifying the method of directing train movements; (Case B) reducing train interference on a single-track line by revising passing siding facilities and modifying the method of directing train movements; (Case C) reducing train interference and increasing the average speed of freight trains by minor changes in track layout and the

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method of directing train movements; (Case D) facilitating train movements by rearranging multiple-track facilities and changing the method of train operation; and (Case E) reducing delays and congestion and increasing the capacity of a section of single-track railroad with minimum changes to the existing plant.

Special Problems Relating to Efficient Railway Operation

One of this committee's assignments is to develop methods or formulas for the solution of special problems relating to more economical and efficient railway operation. In a progress report, offered as information, on this assignment, the committee pointed out that, under the wartime conditions that prevail today, such problems include the determination of increased road capacity, and the extent of the savings in locomotives and cars resulting from the more intensive use of railway facilities due to the increased volume of traffic now being carried.

Taking up first the question of increased road capacity, the committee referred at the outset to previous reports that it has presented on this subject and stated that it felt justified in quoting from one of these reports the following statement: "In most cases the actual capacity of any section of a railroad can only be determined from actual operating experience. Until the traffic reaches a point where it taxes the capacity of the facilities to handle it there is no way of telling what the track capacity actually amounts to." Following a brief discussion of the various factors that may operate to limit the capacities of railroad lines, the committee stated that the problem that is encountered most frequently now is that of a railroad with a daily average of 40, 50, 60 or 70 trains on single track, which is now faced with a 20 to 25 per cent increase in business and is interested to know what increase in train movements can be made by certain changes on the line. The committee said it is now reviewing available subject matter on this question and has under consideration the development of a formula which can be used to determine the per cent of increased capacity resulting from improved train operation.

Turning to the question of locomotives, the committee said that any saving in locomotives brought about by improved train operation is of greater importance at this time than ever before. It then presented typical examples of several formulas that may be used to determine the number of locomotives that can be saved through improved train operation. The committee is continuing its study of this subject and proposes to submit a recommended formula for determining the locomotive saving resulting from improved train operation.

Regarding savings in cars, the committee said that the generally accepted formula for determining cars saved as the result of improved train operation is based on the train-hours saved per day and the average number of cars per train. An example of the formula in which the number of cars saved is determined in this manner was included in the report.

Effect of Volume of Traffic on Railway Operating Expenses

In the past, the committee has submitted reports on various phases of its assignment to determine the effect of volume of traffic on railway operating expenses. This year it devoted its report on this subject to the explanation of a method of determining the effect of volume of traffic on maintenance of equipment expenses. In general, the method described follows that agreed upon between the United States Railroad Administration and the railroads in their final settlement under the Transportation Act of 1920, which method recognized the principle that maintenance of equipment expense does not vary directly with traffic density or use.

Pointing out that the common measure of volume of raliway traffic is gross revenue, the committee explanied that the first step in estimating the effect of variation in gross revenue upon maintenance of equipment expense is to relate gross revenue to units that can be used to measure maintenance of equipment expense, as expressed in the primary accounts of general account No. 2, Maintenance of Equipment. It went on to explain in some detail how this relationship can be established, after which it discussed separately, for each group of equipment repairs, the unit of measure and the method to be followed in determining the probable variation in expenses with relation to the unit.

In reporting this year on its assignment to determine the effect of rail lubrication on train operation, the committee first outlined briefly the results of the tests that were conducted on the Denver & Salt Lake in 1939. These tests, the results of which the committee had previously presented in its report for 1941, indicated that rail and flange lubricators, when located and functioning properly, reduced curve resistance approximately 50 per cent. The committee explained that it subsequently had attempted to determine, by means of a questionnaire addressed to 25 of the principal railroads which follow the practice of lubricating their tracks, the operating advantages accruing from the mechanical lubrication of curves. According to the report, the replies to this questionnaire revealed that only one of these roads, other than the D. & S. L., had made dynamometer car tests and that these tests, made in 1927, were negative in so far as they showed decreased train resistance on the lubricated track.

The committee said, however, that operating experience on the D. & S. L. subsequent to the dynamometer tests made in 1939 has confirmed the results of those tests. Hence, it feels justified in the assumption that, using lubricators of modern design, better results can now be obtained than with the equipment that was available in 1927. Several railroads, according to the committee, are of the opinion that train resistance is diminished through lubrication and that as a result increases in tonnage and reductions in the consumption of fuel and water can be secured. Some roads are of the opinion that, where grades had previously been compensated for curvature, such curvature and grades were not of controlling importance in determining tonnage ratings, with the result that the advantages accruing from lubrication were to be found in decreased fuel consumption, acceleration of the trains while on the curves and a reduction in the hazard of derailments. Virtually all roads were agreed that the installation of mechanical rail lubricators is economically justified, if only for the reason that they result in reduced rail wear on curves and on wheel flanges.

Effects of High Speeds on Economics of Railway Location

With reference to its assignment to determine the effects of speeds in excess of 75 miles per hour on the economics of railway location, the committee explained that two years ago it presented as information a report containing a procedure for plotting the velocity profile of a train on the engineering profile of located or relocated lines, thereby permitting its performance to be shown graphically.

This report, with minor changes and additions, was submitted this year with the recommendation that it be adopted and published in the Manual.

In a brief final report on its assignment to determine the train resistance of freight trains under various conditions of loading and speed, the committee recommended the adoption of an addition to an explanatory note appearing in the Manual in connection with a figure showing the Davis train-resistance formulas.

Modern Power Units and Railway Location and Operation

A comprehensive progress report, offered as information, was presented by the committee in connection with its assignment with reference to the development of modern power units and the effects on the economics of railway location and operation. The committee first discussed some of the considerations and difficulties involved in determining the effects of motive power on the economics of railway location and operation, after which it traced the development of locomotive power since 1914 and discussed the reasons for some of the improvements that have been made. Included in this section of the report are a number of tables giving data on locomotives that were in use at various times. The committee then proceeded to analyze the effects of developments in motive power on various factors, including track construction, freight-train performance, the economics of rail-

way operation and the economics of railway location. Throughout the report, numerous tabulations were presented based on figures compiled and published by the Interstate Commerce Commission.

Report on Masonry

A. N. Laird, Chairman*

Progress reports, offered as information, were submitted by this committee on 4 of its 10 assignments.

Revision of Manual

Attention was called by the committee to the fact that the American Society for Testing Materials has adopted emergency alternate specifications covering the manufacture of Portland cement for the duration of the war, and that, on its recommendation, and with the endorsement of the Emergency Committee on Structural Problems, the Emergency Committee representing the Board of Direction had authorized the publication of the alternate specifications as emergency provisions. These specifications were printed in full in the report of the committee.

Pressure Grouting

Reporting on its assignment relative to pressure grouting, the committee submitted as information an outline of recommended practice for consolidating foundation soils by pressure grouting. It is the intention of the committee, as expressed in the report, to make any necessary revisions and amendments in this outline and then to present it at a later date for inclusion in the Manual as a specification. Pointing out that an indispensable preliminary to any soil grouting project is a thorough exploration of the characteristics of the sub-soil to be encountered, the outline explained in some detail the nature of the information that should be developed. Other matters considered in the outline included methods of applying the grout, the nature of the equipment to be used, the grout mix, the application of a test load to the grouted area, and the method of payment if the work is done under contract.

Concrete and Reinforced Concrete Structures

One of this committee's assignments is to develop specifications for concrete and reinforced concrete railroad bridges and other structures. Reporting on this subject, the committee said that during the year it had made a number of revisions in the specifications covering such structures that were presented at the 1942 convention. Those sections of the specification in which major changes were made were printed as a part of the report for this year with the explanation that they will later be incorporated in the original draft and that, after further study, the committee intends to submit the specifications next year for approval and publication in the Manual. The sections in which revisions were made included those on aggregates, fine aggregates, cement, depositing concrete in air, and curing.

Conservation of Critical Materials During the War

A new assignment of this committee is to develop, and keep the association informed of, emergency provisions for the modification of specifications and recommended practices looking to the conservation of critical materials during the war. Under this assignment, it reported that, with the object of effecting maximum conservation of critical materials used in concrete structures during the war, it had developed recommendations for the modification of specifications, practices and policies to be followed by the railroads in the design, construction and maintenance of concrete railway bridges, retaining walls and other concrete structures, exclusive of buildings, within the scope of the committee's assignments.

It was the intention to submit these recommendations in their entirety for adoption as A. R. E. A. emergency provisions, but the committee explained that, just prior to the publication of the report, it had received advance copies of emergency specifications for reinforced concrete railway bridges prepared by the War Production Board, with a request for suggestions and comments. Therefore, to avoid conflict with a document which would necessarily take precedence over its recommendations, the committee deemed it advisable to withdraw from its report the subject matter relative to design and submit only the portions embracing suggested modifications of requirements for materials and workmanship and recommendations for maintenance and repairs to existing structures to avoid reconstruction and to curtail the use of critical materials in making such repairs. The abridged recommendations were appended to the report with the explanation that they had been submitted to the Emergency Committee representing the Board of Direction for adoption and publication as emergency provisions.

* Bridge Engineer, Grand Trunk Western.

Report on Electricity

D. B. Thompson, Chairman*

This committee submitted progress reports, offered as information, on both of its assignments, which are to report (1) on developments in the application of electricity to railway service, and (2) on the principal current activities of the Electrical section, Engineering division, A. A. R.

Regarding its first assignment, the committee referred to the necessity, in view of world conditions, to revise specifications for materials to substitute non-critical for critical materials, and to devise ways and means of prolonging the life of existing equipment and of increasing its usefulness. It reported that, toward these ends, the Electrical section is playing an important part through its committees which are working with the various government agencies in exploring possible substitutions and revising specifications to reduce the use of critical materials. Synthetic resin materials, having many of the desirable characteristics of rubber, is now being used for insulation purposes and it is highly probable that the future will reveal many substitutes acceptable as standards.

The committee is of the opinion that the tendency toward a general acceptance of specifications promoted by national organizations will result in the elimination of many types and sizes of wires and lamps. Turning to the subject of welding, it reported that a new alternating-current electrode, known as the general-purpose electrode, had been placed on the market. The availability of this electrode, which can be used for all-position welding, has made possible the greater use of a transformer-type welder, which, it explained, is the simplest type of machine, with no moving parts. The committee is of the opinion that, because of experience gained by force of necessity during the emergency, greater consideration will be given in the future to measures designed to obtain the maximum efficiency and availability from facilities in use.

The report of the committee on its second assignment included a resumé of certain special activities of the Electrical section in connection with the war effort. Among these, it explained that this section participated with other sections of the A. A. R. concerned with the use of electricity in the organization of a special committee to deal with the problem of critical materials, resulting in the formulation of definite recommendations relative to the use of varnished cambric cable under certain conditions instead of rubber-covered cable. Also, the section has participated in actions leading to the use of a type of solder requiring a smaller percentage of tin, and of a new type of splice for lead-covered cables containing smaller amounts of solder and lead; has taken an active part in the drafting of temporary revisions of the National Electric Code; has gathered available information on permissible overloads on transformers; has formulated rather definite instructions relative to the conservation of welding rod; and is now investigating methods of controlling lighting so that blackouts may be effected promptly whenever needed. In addition, the recommendation has been made to all member roads that during the emergency all electrical installations be designed on the basis of the current-carrying capacity of the

* Mechanical and Electrical Engineer, New York Central System.

wire rather than on the basis of determining wire size by the limiting voltage drop.

In accordance with its usual practice the committee also reported on the activities of the various standing committees of the Electrical section, including those on Power Supply, Standardization of Apparatus and Materials, Electric Heating and Welding, Track and Third Rail Bonds, Illumination, and Design of Indoor and Outdoor Substations.

Report on Highways

J. G. Brennan, Chairman*

A report was presented by this committee on one of its six assignments, namely, Revision of Manual. In this report it recommended the elimination of the figure now in the Manual showing the striping of highway crossing gate arms and its replacement with drawing No. 1491B, designated Crossing Gate Arm, of the Signal section of the A. A. R. This substitution, as explained by the committee, changes the striping from 12 in., measured along the edge of the gate arm, to 16 in., gives measurements for the maximum lengths of single-bearing and double-bearing gate arms, and provides for cross bracing where the length of the gate arm is between 24 ft. and 38 ft.

Report of Committee on Rail

W. H. Penfield, Chairman†

This committee presented progress reports on all but 2 of its 11 assignments. Appended to the report was the Ninth Progress Report of the Joint Investigation of Fissures in Railroad Rails, which is being conducted by the engineering experiment station of the University of Illinois, in co-operation with the Association of American Railroads, through the Committee on Rail of the A. R. E. A., and the manufacture, through the Rail Manufacturers' Technical Committee.

Revision of Manual

During the year emergency provisions covering the specifications for heat-treated carbon-steel and alloy-steel track bolts, open-hearth steel rails, and spring washers were recommended by the committee and adopted by the Emergency Committee representing the Board of Direction. These provisions were listed in the report, with the explanation that their principal purpose is to provide a single standard specification for the use of all railroads, particularly where some of the roads had their own specifications or had certain special conditions to meet. Also presented in the report under Revision of Manual were the results of a study that had been made in the interest of arriving at a standardization of the design of joint bars to be used with new rail for the duration of the war.

Rail Failure Statistics

In line with customary practice, a report on rail failure statistics was presented by W. C. Barnes, engineer of tests of the committee. These statistics, covering the year ending December 31, 1941, were compiled in accordance with the standard method of basing the failure rates on mile-years of service in track. The report included the usual analyses, presented in the form of charts and tables, of rail failures by individual mills and for all mills.

One of the tables gives the average number of failures per 100 track-miles, accumulative from one to five years, for the rails rolled by all mills each year. Pointing out that the 1936 rollings, whose period of observation is now concluded, show an average of 50.7 failures per 100 track-miles for the five-year period, Mr. Barnes said that this is the lowest rate so far recorded, with the exception of that for the 1934 rollings.

The usual report on transverse fissure failures was also submitted by Mr. Barnes. This report contains figures that constitute a cumulative record of transverse fissue failures reported up to and including December 31, 1941. They include all transverse fissured rails reported, whether located by actual breakage in service or detected before actual breakage by inspection or test. The statistics are given in the form of a table showing transverse fissure failures by railroads on a yearly basis, divided between service and detected failures; a chart showing the yearly trend of fissure failures; a table giving the accumulated transverse fissure failures reported to December 31, 1940, by years and by mills; and charts showing failure rates by mills.

Transverse Fissure Failures

According to the data given, 5,772 service failures and 20,408 detected failures occurred in 1941, a total of 26,180. This compares with 4,721 service failures and 15,064 detected failures in 1940, a total of 19,785. Thus, as compared with 1940, the number of service failures occurring in 1941 showed an increase of 1,051, and detected failures increased 5,344, giving a net increase in the total failures of 6,395. This part of the report included a tabulation showing the number of fissure failures occurring in the first year of service for all rollings since 1925.

Control Cooled and Brunorized Rail

Statistics were presented by Mr. Barnes to show the tonnage of control cooled and Brunorized rail that had been purchased by various railroads, and the performance of such rails in service. This data included a table giving the tonnages of control cooled and Brunorized contract rail that had been purchased by the roads represented on the Rail committee to June 30, 1942. This tabulation shows that these railroads have purchased a total of 5,014,685 tons of such rail, of which 4,861,295 tons were control cooled and 153,390 tons were Brunorized. This represents an increase of 997,923 tons of control cooled rail and 13,139 tons of Brunorized rail over the tonnages reported to June 30, 1941.

Included in this part of the report was a table giving the failures, by mills, that had been reported to November 20, 1942, in both control cooled and Brunorized rail. In discussing these failures, Mr. Barnes explained that investigation has shown that all but two of the transverse fissure failures that had developed in control cooled rail had developed from inclusions or blow holes, and that an investigation of two such failures which originated in shatter cracks had developed the fact that the rails involved were rolled before suitable cooling box covers were in use.

Noting that a number of fissures have occurred in Brunorized rails which were rolled prior to the change made in that process in April, 1938, Mr. Barnes said that no fissures have been reported in any Brunorized rail manufactured under the revised process.

Cause and Prevention of Rail Battering

In collaboration with the Rail investigation at the University of Illinois, this committee is conducting a field test of heat-treated rail ends on the C. & O. north of Carey, Ohio. In a progress report on this test, the committee explained that the results of field tests for batter of the end-hardened rails, which had carried a gross tonnage of 125,000,000 up to April, 1942, are given in the Ninth Progress Report of the Joint Investigation of Fissures in Railroad Rails. The committee reported that there have been no new developments in the field test of various methods of building up battered rail ends that is now in progress in a stretch of the southbound main line of the Richmond, Fredericksburg & Potomac railroad near Penola, Va.

Continuous Welding of Rail

In connection with its assignment to investigate the continuous welding of rail, the committee presented a tabulation of additional service failures that had occurred in ten of the installations that were listed in the 1940 report of the committee

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† Chief Engineer, Chicago, Milwaukee, St. Paul & Pacific.

on this subject. The report also included a tabulation giving summarized data to date concerning the various installations of continuous welded rail and failures that have occurred.

Service Tests of Joint Bars

A comprehensive progress report, submitted as information, was presented by the committee relative to its assignment to conduct service tests of various types of joint bars. In fulfillment of this assignment, the committee has under observation two test installations of various types of joint bars that were installed in 1937, one on the Atchison, Topeka & Santa Fe west of Streator, Ill., and the other on the Pennsylvania east of Valparaiso, Ind. It reported that observations and measurements of the test installations were continued during 1942, the principal measurements including (a) joint camber on the rail head, (b) rail surface profile, (c) out-to-out distance of the bars, and (d) bolt tension. The report consisted largely of a discussion of the significance of these various tests and of the results to date, which are given in the form of tables and charts. Appended to the report were a number of conclusions based on the observations of the committee.

Investigation of Joint Bar Failures

One of this committee's assignments is to investigate joint bar failures and to give consideration to the revision of designs and specifications. In previous reports on this subject, the committee had outlined tests of fully assembled rail joints that were being conducted by the Colorado Fuel & Iron Corporation and on the rolling-load machine at the University of Illinois. This year the report on this assignment was divided into two parts, one giving the results of the tests conducted by the Colorado Fuel & Iron Corporation, while the other, in the form of a monograph by N. J. Alleman, special research assistant professor of engineering materials, University of Illinois, was in the nature of a progress report on the rolling-load tests.

Fractures Under Engine Burns in Rail

A brief progress report, submitted as information, was presented by the committee in connection with its assignment to investigate the development and characteristics of fractures occurring under engine burns in rail. After a short discussion of the characteristics and growth of such fractures, the committee pointed out that, as a result of a number of drop tests on rails with and without engine burns, it was concluded that further tests should be made through the use of a rolling-load machine. Accordingly, a rolling-load machine has been installed at Alexandria, Va., and the committee expressed the hope that it would be possible to start the test early this year. It would like to obtain access to another rolling-load machine with the object of making more rapid progress in conducting the tests, with the hope that the assignment can be completed this year.

Causes of Shelly Spots and Head Checks

A progress report, submitted as information, was presented by the committee relative to its assignment to investigate causes of shelly spots and head checks in rail surfaces for the purpose of developing measures for their prevention. Following a review of the work done to date under this assignment, the committee submitted a brief discussion of the nature and characteristics of gage-corner shelling and then explained that it had divided this assignment into three groups or subdivisions as follows: (1) Studies to be handled directly by the sub-committee; (2) studies to be handled by the Engineering Division research staff; and (3) studies to be handled by the University of Illinois staff. The committee reported that all three of the groups were actively engaged in their assignments during 1942 and expect to continue during 1943.

Explaining that its studies have not progressed sufficiently to warrant the drawing of conclusions at this time, the committee went on to discuss the work that had been done under each of the three subdivisions. The discussion of the work done by Group 1 was relatively brief, but that under Groups 2 and 3 was more in detail. The subject matter relative to the work done by Group 2 consisted of a discussion of the results of a study of rail contours that was made on the Atchison, Topeka & Santa Fe, the Norfolk & Western and the Chesapeake & Ohio. The subject matter under Group 3 was in the nature of a monograph by R. E. Cramer, special research assistant professor of engineering materials, University of Illinois. Prof. Cramer first discussed in a general way the characteristics and manner of occurrence of gage-corner shelling, flaking, and head checks, this part of the discussion being illustrated by a number of photographs showing the various types of defects.

Prof. Cramer pointed out that the following phases of the subject had been assigned for study at the University of Illinois: (a) Examination of rail failures caused by shelling; (b) rolling load tests to produce shelling under laboratory conditions; (c) the resistance of different rail steel compositions to the development of shelling by means of laboratory rolling-load tests; and (d) the effects of different heat treatments of rails on the development of shelling, as shown by laboratory rolling-load tests. The work that has been done in pursuance of each of these lines of study was then described in some detail.

Ninth Progress Report on Rail Investigation

Appended to the report of the Committee on Rail was the Ninth Progress Report of the Joint Investigation of Fissures in Railroad Rails that is being conducted by the engineering experiment station, University of Illinois, in co-operation with the Committee on Rail and the Rail Manufacturers' Technical Committee. This investigation is being carried out under the general direction of H. F. Moore, research professor of engineering materials, University of Illinois, who has been in charge of the work since its inception in 1931. The Ninth Progress Report was composed of six chapters, prepared by various members of the test party, each of which dealt with a different phase of the investigation. The five subjects reported on were as follows: (1) Field tests for batter of end-hardened rails in service on the Chesapeake & Ohio; (2) examination of end-hardened rails in Carey (Ohio) test track for weeping cracks; (3) tests of insulated mill cooling containers for rails; (4) examination of control cooled and Brunorized rails which failed in service; and (5) comparison of drop and bend tests.

Report of Committee on Ties

John Foley, Chairman*

Progress reports, offered as information, were submitted by this committee on three of its five assignments.

Extent of Adherence to Specifications

During normal times it is the practice of this committee to make inspection trips each year to determine the extent to which specifications are being observed in the manufacture and handling of ties. However, because of the wartime conditions prevailing in 1942, it did not feel justified in making its usual inspection trips during that year. In lieu of the usual discussion of the committee's findings on its inspection trips, the report was devoted largely to a discussion of the shortage of ties and its effect on the observance of specifications.

Pointing out that there is a sub-normal production of ties in many sections of the country, and that in some localities the shortage may reach serious proportions, the committee discussed the reasons for the reduced production. Turning to the effect of the shortage on the observance of tie specifications, the committee explained that the increased competition for the smaller number of ties that are available presents a temptation to depart from approved standards. However, it was able to report that, to date, the acceptance of inferior ties is apparently not so prevalent as in former periods of scarcity. The existence of a definite standard and its adoption in actual practice have made departure from it less easy than heretofore, according to the

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committee, while the fixing of prices prevents competition on any other basis than inspection.

Pointing out that the problems presented by lessened production cannot be solved satisfactorily by lowering the standards, the committee noted that the present volume and character of traffic need the support of a substantial tie condition which can be produced most economically by the use of long-lived sound ties. It recommended vigilance in the maintenance of the standards that have demonstrated their effectiveness over a period of time. It pointed out that the supply of ties during any period of shortage can be increased by utilizing every available kind of wood, and then asserted that closer adherence to recommended practice in the handling of ties will lengthen their life and, by thus reducing the demand, make less grievous any shortage which may develop.

Tie Renewal Averages and Costs

In accordance with its usual practice, the committee presented tabulations of tie renewals and costs for 1941 and the last five years. These tables, which are based on data reported to the Interstate Commerce Commission by railroads in the United States and to the association by Canadian roads, were given advance publication in Bulletin 432, June-July, 1942. (Abstracted in the *Railway Age* of July 11, page 54.)

The committee cautioned that a knowledge of conditions and practices on individual railroads is required for an understanding of the differences in costs and quantities which appear in the table. The costs, it said, are influenced by charges which do not correspond in character on every railroad. However, few railroads, it said, renew more than 10 per cent of their ties per year, and the majority average more than 20 years service from their ties.

Cause and Control of Splitting in Railroad Ties

With reference to its assignment to report on the cause and control of splitting in railroad ties, the committee explained that necessary restrictions on travel and other conditions prevented field observations by the committee during 1942 of the seasoning behavior of ties. Its report on this subject was devoted largely to a discussion of the effects of the temporary ban of the War Production Board on the production of anti-splitting devices, and of the advantages of the use of such devices during the present emergency. According to the committee, the order of the War Production Board, which was later amended, presented an opportunity to those interested to observe the extent to which splitting occurs in hardwood ties that are not protected by anti-splitting devices. After quoting the reasons that were given at the time for putting the ban in effect, the committee went on to discuss the manner in which the inability to use such irons resulted in a reduction in the number of ties available. Other adverse effects, it said, were an increase in the first costs of whatever ties were produced and an increase in the annual costs of ties in track.

Pointing out that devices to prevent ties from splitting as the result of the stresses due to seasoning and traffic have been in use for about 50 years, and that during the last 30 years their application has increased greatly due to the wider use of treated ties, the committee went on to discuss the reasons for using anti-splitting irons and the necessity of applying them at the time the ties are stacked for seasoning or as soon as possible thereafter. Under normal conditions, it said, anti-splitting devices are applied to ties as a measure of economy, since maintenance of way officers are convinced that their use results in an appreciable lengthening of the service life of ties. In view of the conditions which now confront the railroads, the committee feels that their ability to continue the application of anti-splitting devices is a vital factor in the efforts that are being made to obtain an adequate number of usable ties to maintain the tracks in condition to handle the enormous volume of traffic that has been imposed by the war effort.

Discussing the function of the track tie, the committee pointed out that it is generally recognized that the condition of the crosstie plays a more important part in determining the safety of the track for handling traffic than any other element of the track structure. It closed its report with the following comment: "In their utilization of anti-splitting devices, railroads can contribute to the conservation of steel by ordering only the minimum serviceable thickness of strip (14 gage), by using only the shapes of irons requiring the minimum length of strip, and by avoiding application of the larger sizes of irons to the smaller sizes of ties."

Records and Accounts

C. A. Knowles, Chairman*

Reports were submitted by this committee on five of its seven assignment, all being progress reports, offered as information.

Revision of Manual

Under Revision of Manual, the committee explained that, since the printing of the rearranged chapter of the Manual on records and accounts, as reported in the 1942 proceedings, had been held in abeyance, it had made a further study of the chapter material for the purpose of determining whether certain parts had become obsolete and should be eliminated. This study revealed that, although certain changes in the Classification of Accounts prescribed by the Interstate Commerce Commission might appear to render some of the material obsolete, nevertheless such material continues to serve a useful purpose as a guide. Accordingly, said the committee, the rearranged chapter and material have been turned over to the secretary with the suggestion that it be edited further and printed in as nearly the form recommended as practicable.

Bibliography

In accordance with its usual practice, the committee submitted as information a bibliography of books, pamphlets and periodicals containing matter pertaining to railroad records and accounts. This year's compilations contain references to material published during the period from November 1, 1941, to November 1, 1942.

Office and Drafting Room Practices

In its report on office and drafting room practices, the committee called attention to the fact that its report presented at the 1942 annual meeting included certain information relative to the office use of microphotography. This year it offered as further information on this subject a paper by B. H. Moore, valuation assistant and accountant of the A. A. R.

At the outset, Mr. Moore noted that under wartime conditions it is necessary, particularly in seaboard cities, that records be afforded proper protection against bombing raids, and stated that the use of microphotography offers one of the best, and possibly the cheapest, forms of insurance. Explaining that microphotography is the art or science of making microscopically small photographs of a picture, manuscript, printed page, etc., he went on to explain the advantages of this method as a means of keeping railroad records. Not only does it reduce the space required by as much as 95 per cent, he said, but its use also makes it possible to speed up accounting work materially. Next, he explained the advantages and use of microphotography as a means of reproducing waybills and noted how it had been used for this purpose to great advantage on a particular railroad during an emergency created by flood conditions. Mr. Moore also discussed the legality of Microfilm records, noted that microphotography is used extensively by certain agencies of the federal government, and discussed the requirements of the Interstate Commerce Commission as to preservation of records. In the latter connection, he pointed out that, although there is no blanket authority providing for the substitution of Microfilms for the original documents, the commission has, on application by individual carriers, granted permission to railroads to substitute Microfilms and to destroy certain original documents.

Included in the report of this committee was its usual résumé

* Valuation Engineer, Chesapeake & Ohio.

of developments of the current year in connection with regulatory bodies and courts. In addition to including the customary review of the activities and orders of the Interstate Commerce Commission relative to valuation matters, the committee discussed, and quoted from, two decisions bearing on the matter of rate making. One of these was a decision handed down by the Supreme Court on March 16, 1942, in the Federal Power Commission v. Natural Gas Pipe Line Company case, while the other was a decision of the Federal Power Commission involving natural gas rates in Michigan, which was decided on September 23, 1942.

Revision in I. C. C. Classification

One of this committee's assignments is to report on changes in, and revisions and interpretations of, I. C. C. accounting classifications. Following its usual practice, it presented a list of proposed accounting orders and rulings that had been submitted to it by E. H. Bunnell, vice-president, Association of American Railroads, and concerning which summaries of the opinions of the committee members had been furnished to Mr. Bunnell. Also included was a list of orders of interest to engineers, modifying the accounting classifications, that had been issued by the I. C. C. since the committee's last report, and a list of new and revised rulings that had been issued by the Bureau of Accounts.

Signals and Interlocking

H. L. Stanton, Chairman*

Progress reports, offered as information, were submitted by this committee on both of its assignments, which are (1) to report on developments in railway signaling, and (2) to keep the association informed of the principal current activities of the Signal section, A. A. R.

Under its first assignment, the committee described a new development which makes it possible to control signals, switches and indications in two or more centralized traffic control sections simultaneously over a pair of line wires from the centralized traffic control office. If the pair of wires is also used for a telephone circuit, conversations can be carried on without interference. Another application of this development permits the operator of a centralized traffic control installation to be located at a point remote from the CTC territory. Describing the advantages claimed for this development, the committee reported that (1) it results in a saving in the amount of line wire needed for large installations; (2) it makes possible the practical removal of limits, both in regard to the number of field stations and the length of CTC line which may be controlled from one point over one pair of line wires; and (3) it gives a wider latitude of choice in locating the operator of the CTC installation.

Reporting on its second assignment, the committee said that emergency methods and practices for the conservation of vital war materials, as well as emergency specifications, have been issued, and that this subject is being handled by the Special Emergency Specification committee, in co-operation with the War Production Board. Also, it said that all ten of the standing committees are investigating the possibilities for the use of substitute materials, and that representatives of the section are participating actively in the tests being conducted by the Special Committee on Blackout of Railway Equipment of the A. A. R.

Turning to the regular activities of the Signal section, the committee said that three of the chapters of American Railway Signaling Principles and Practices, prepared for the education of signal men and others desiring to study this subject, have been revised and brought up to date. It explained that the complete series will comprise 24 chapters, of which 23 have been brought up to date.

In addition, the committee named 24 subjects that had been investigated by the section during the 1941 fiscal year, and listed the revised and new specifications, drawings, requisites, and instructions that have been submitted to letter ballot, and also the matter that has been submitted to letter ballot for removal from the Manual.

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Roadway and Ballast

A. E. Botts, Chairman*

Reports were presented by this committee on one or more parts of 10 of its 13 assignments. Most of these were progress or final reports, offered as information, although some reports were submitted for adoption and publication in the Manual.

Natural Waterways—Prevention of Erosion

In connection with its assignment to investigate means of preventing erosion in natural waterways, the committee submitted a progress report describing the manner in which this can be accomplished by reducing the stream gradient through the use of check dams. This report covers such subjects as the purpose and function of check dams, factors to be considered in determining the correct channel slope and cross-section and the velocity of flow, the location of check dams, factors affecting the length of the stream section to be treated, and standards of construction for channels, levees and check dams. A number of formulas are given, together with examples of their application to act projects. Two drawings are included in the report, one showing a check dam installation on the Erie and the other a typical design for timber check dams. The following conclusion was appended: "Where annual maintenance costs justify the expenditure and where the conditions fall within the limits described in the foregoing, this method of stream control is recommended."

Culverts

Reports were presented by the committee on both of its assignments under the general heading of culverts, which are to develop (a) specifications for perforated pipe for subdrainage, and (b) specifications for structural plate pipe and arches. In connection with the first of these assignments, the committee reported that a tentative draft of specifications for perforated pipe for subdrainage was presented as information at the 1942 meeting, together with a request for comments and criticisms. During the past year, the committee continued its study of the assignment with the result that a number of revisions were incorporated in the specifications. As revised, the specifications were submitted this year with the recommendation that they be adopted and published in the Manual. The committee is fully cognizant of the fact that this specification covers material that is not now obtainable, but because the work on the assignment was well advanced, it was deemed desirable to complete it so that the specifications will be available when the emergency is over and the railroads will again be able to carry out essential improvement and maintenance work.

With reference to the second phase of its assignment on culverts (specifications for structural plate pipe and arches), the committee called attention to the fact that a tentative draft of such specifications was presented last year as information with a request for criticisms. During the past year the committee continued its study of this assignment, as the result of which a rather general revision was found desirable. As revised, the specifications were submitted again this year as information.

Formation of Roadway—Recent Grading Projects

A progress report, submitted as information, was presented by this committee on its assignment to report on recent grading projects involving formation of the roadway. At the outset, the committee pointed out that the application of gasoline and Diesel power to grading operations, which accompanied the expansion of the highway system, has resulted in lower costs and better work. The purpose of the report, it said, is to show to what extent railroad practice has kept pace with this development and to emphasize the benefits that may be derived therefrom. By means of inexpensive precautions involving the spreading of material in layers and the proper routing of hauling equipment, the committee said that embankments are now built which are more compact than those formerly made with teams and scrapers, and far superior to those built by other methods.

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Where conditions make it desirable, further compaction to any desired degree may be obtained at small expense by rolling, supplemented where necessary by watering.

Following these introductory remarks, the committee devoted the remainder of its report to a brief analysis of ten large railroad grading projects that were carried out during the last ten years, seven of which have been described in detail in past issues of the *Railway Age*. This part of the report contained five tabulations giving general data on the grading projects, the type of grading equipment used, the method of treatment of the compactable material and the resulting settlement, the methods of preparing the foundations and the proportions of subgrades.

Roadway Drainage

One of the assignments of this committee is to report on the extent to which recommended practices of the association relative to roadway drainage are being followed by the railroads. To fulfill this assignment the committee sent a questionnaire to 62 railroads, of which more than 30 per cent submitted replies. In a final report, submitted as information, the committee discussed the extent to which the respondent railroads are adhering to recommended practice. In concluding its report, the committee said that the answers to the questionnaires indicate that: (a) Extensive use is being made of artificial *surface* drainage, as recommended; and that (b) use is being made of subsurface drainage, as recommended, where such drainage appears necessary and economical.

Roadway Protection

This committee has several assignments under the general heading of roadway protection. One of these has to do with retaining walls, and this assignment, in turn, has two subdivisions, namely, (1) cribbing—timber, concrete; and (2) walls—dry rubble, masonry. In reporting this year on this assignment, the committee called attention to the fact that it had submitted last year a comprehensive report on the subject, and had invited comments and criticisms of that report. As a result of criticisms received during the year, the latter part of the report that was presented last year was revised in some respects and the revised portion was printed in full with this year's report. It was recommended by the committee that the material appearing under the heading "Retaining Walls" in the proceedings for 1942 be adopted for publication in the Manual, together with the material presented in this year's report, which comprises a revision of the last three paragraphs of the material in the proceedings.

The committee's other assignment under roadway protection is to report on methods employed in stabilizing the roadbed. In a progress report, submitted as information, on this subject the committee listed the various methods, other than drainage, that have been found satisfactory for stabilizing the roadbed, and then discussed each of these measures separately, giving specific examples of their actual application. The methods that were treated in this manner included (1) concrete sub-ballast slabs; (2) wood mats; (3) grouting; and (4) driving cull ties, poles, piling or scrap rail.

Plans and Specifications for Telltales

A progress report, submitted as information, was presented by the committee on its assignment to develop specifications and plans for telltales—overhead and side. In carrying out this assignment, the committee requested representatives of 35 railroads to furnish plans showing their overhead and side warnings. Based on the information received in this survey, the committee developed plans and specifications for one, two, three and four-track overhead metal warnings and metal side warnings, which were presented in the report. This material included three drawings, one showing details of one and two-track overhead warnings, another details of three and four-track overhead warnings, and a third details of the side warnings.

The committee explained that considerable work had been completed on this report before conditions became such as to demand the conservation of critical materials; otherwise, it said, substitute materials would have been indicated. However, it explained that additional data are being secured, looking to the development of plans and specifications for wood structures, covering each type of warning described and illustrated in the report.

Ballast Specifications

Under its assignment relative to ballast specifications, the committee was instructed to study the three specifications for prepared ballast now included in the Manual (crushed stone, crushed slag and prepared gravel) and to make their requirements uniform insofar as practicable. Based on its study, the committee developed a proposed consolidated specification, which was appended to the report. With two exceptions, this single specification merely combines in one document the basic requirements which now appear in the three separate specifications that it is intended to replace. The two exceptions are: (1) The requirement for the absorption test of crushed stone has been omitted; and (2) the Los Angeles abrasion test has been substituted for the Deval abrasion test. A summary of comments received from members of the committee is included in the report. It is planned to give careful consideration to these comments, and any additional criticisms that may be received, with the hope of having the consolidated specification ready for adoption next year.

As its report on its assignment relative to cleaning ballast, the committee submitted as information a general discussion of the subject, which included mention of the sources of material that foul ballast, the proper time for cleaning ballast, the development of mechanical ballast-cleaning equipment, the depth to which ballast should be cleaned, the replacement of ballast lost in the cleaning operation, and the use of discers and scarifiers.

Ballast Tests

One of this committee's assignments is to investigate the various ballast tests and to make comparisons between service behavior of ballast and results obtained from the Los Angeles testing machine. In a final report, submitted as information, on this assignment, the committee first reviewed the various tests that have been used for determining the quality of railroad ballast, pointing out that they were first developed for testing stone for highways. It then referred to the development by the municipal laboratory of the city of Los Angeles of the Los Angeles abrasion test and pointed out that, in the highway field, it is generally felt that this test can be used to replace the three tests formerly employed for determining the physical properties of aggregates. Hence, the possibility of using this newer test for railroad ballast in lieu of the far more complicated tests now specified became a desirable subject for investigation, with the result that the work of making the necessary studies was assigned to a subcommittee.

Reporting on its investigation this year, the subcommittee gave a brief account of its efforts to carry out the assignment, presented a short discussion of the advantages and disadvantages of the respective physical tests, described the Los Angeles abrasion test, and submitted an appenddix giving the results of an investigation of various types of stone ballast.

Special Ballast

Under the general heading of special ballast, this committee has two assignments, namely, to investigate (a) the use of asphalt in ballast; and (b) the use of grouting in ballast. With reference to the first of these two subdivisions, a brief progress report, submitted as information, was presented by the committee covering the test section of emulsified asphalt-coated stone ballast that was installed in the eastbound high-speed track of the New York Central at Byron, Ohio, in 1939. The committee noted that new rail and fastenings, except for tie plates, were laid through the test section in 1942, but said that, other than this, no work was performed on the section in that year. It said that in one rail length there are a few loose ties and it is the intention to retamp these before the end of the year. Concluding its report, the committee said that the track in the test section rides well, remains in good line and surface and continues to give satisfactory results with a minimum expenditure.

In reporting on the use of grout in ballast, the committee first pointed out that it has obtained information from various sources regarding methods employed in introducing Portland

cement grout in stone ballast. Based on its studies, the committee presented as information an outline of practice covering the procedure for introducing grout in ballast, and also presented a number of photographs illustrating the various steps involved.

Special Committee on Impact

J. B. Hunley, Chairman*

This committee submitted a comprehensive partial report, offered as information, on its assignment to conduct tests of short steel spans with open floors to determine the effects of track inequalities and worn wheels on such spans. No reports were made on the committee's six other assignments.

The report on the one assignment consists of a description of a series of tests, and an analysis of the results, that were made on bridges of the Chicago, Burlington & Quincy, the Atchison, Topeka & Santa Fe and the Chicago & North Western during 1941 and the first part of 1942. The principal reason for making these tests was to determine the impact resulting from the passage over the spans of Diesel-electric locomotives, which have no unbalanced parts, operating at various speeds, both with and without a battered joint located in one rail at or near the center of the bridge. So far as possible, an effort was made to select two bridges on each railroad having the same span length and the same steel design, one bridge having an open deck and the other a ballasted deck. The shortest span tested was 20 ft. long, out to out of steel, while the longest had an over-all length of 32 ft. 6 in. On two of the bridges tests were conducted to determine the effect of placing rubber fabric pads under the tie plates. In connection with the tests, stress records were also obtained under steam locomotives but since such equipment was not suitable for the purpose of the tests, the steam locomotive data were not analyzed, although the committee feels that it will be valuable in studying some of its other assignments.

Stresses were measured at the center of each span under regular scheduled trains operating at speeds ranging from approximately 5 miles per hour, which was considered static loading, to a maximum of 100 m.p.h. Electro-magnetic gages were used for measuring the stresses, and every care was taken in calibrating the instruments and conducting the tests; hence, it is believed by the committee that the results can be accepted with full confidence. The general procedure in making the tests, after the instruments had all been calibrated and erected, was to secure records under both types of locomotives with a battered joint in one rail on the bridge. The battered joint was then replaced with a continuous rail, and further stress records were taken at approximately the same speeds. Since the North Western bridges were in double-track territory and the steel under both tracks was identical, the battered joint was placed in one track only and records were then taken under both tracks.

In the committee's report on these tests complete descriptions are included of the nature and location of the instruments, of the various spans tested, of the locomotives under which recordings were taken, and of the manner in which the stress records were taken and analyzed. The report includes a total of 74 illustrations, including rail profile and tie-play diagrams of the spans tested, drawings showing steel details and the location of the instruments on each of the bridges, diagrams showing the wheel arrangements and other data pertaining to the various locomotives, reproductions of typical strain records, and various charts and graphs showing the test results. Also, there are seven tables showing various data pertaining to the tests.

Based on its analysis of the tests, the committee presented 13 conclusions as follows:

1. In these short spans the recorded static stresses are appreciably lower than the calculated static stresses, based upon the concentrated wheel loads. The difference was greater on the spans with ballasted decks than those with open decks.

2. The stresses resulting from a battered rail joint on the bridges with both open and ballasted decks were found to be a maximum at comparatively low speeds, with the exception of the Santa Fe 22-ft. ballasted deck span. The track effect stresses reduced in magnitude after the critical speed was passed.

3. The track effect stresses found on the ballasted-deck spans were considerably lower than those found on open deck spans.

4. The track effect stresses with a battered rail joint on the bridge are generally greater at the critical speed than those calculated by either the AREA design specification or the AREA rating rules for any probable speed.

5. On spans with either open or ballasted decks, without battered rail joints, there is no definite critical speed at which the track-effect stresses are a maximum, but they seem to increase gradually with an increase in speed.

6. The track-effect stresses, without a battered rail joint on the span, with either open or ballasted decks, are generally lower than the stresses calculated by either the AREA design specifications or the AREA rating rules.

7. There was some increase in stress with an increase in speed, called "speed effect".

8. The stresses in these short spans due to roll were generally found to be somewhat less than those provided for in the AREA design specification and rating rules. In most cases, the stresses due to roll increased with an increase in speed up to about 60 m.p.h. where they were a maximum.

9. The total percentages of impact in both open and ballasted deck bridges on the Burlington were greater than those provided for by either the AREA design specification or rating rules, while on the Santa Fe and the North Western bridges the total impacts were lower than those provided for by the AREA design specification, but exceeded the provisions of the AREA rating rules.

10. The total impacts in bridges having ballasted decks were lower than the impacts in bridges having open decks.

11. The ½-in. rubber fabric pads used under the regular steel tie plates in these tests did not reduce the amount of impact.

12. For rating short span bridges, when $\frac{I}{L}$ of the span does not exceed 100, it is tentatively recommended that the concentrated load or force acting at the center of the span due to the track joint effect and now expressed as $F = \frac{WS^2}{20{,}000}$ be taken as:

(a) With rail joint at or near the center of the span:

For open deck bridges ..... $F = 0.8\left(\frac{I}{L}\right) - 0.004\left(\frac{I}{L}\right)^2$

For ballasted deck bridges... $F = 0.4\left(\frac{I}{L}\right) - 0.002\left(\frac{I}{L}\right)^2$

(b) Without rail joints at or near the center of the span:

For open deck bridges ..... $F = 0.40\left(\frac{I}{L}\right) - 0.0020\left(\frac{I}{L}\right)^2$

For ballasted deck bridges... $F = 0.22\left(\frac{I}{L}\right) - 0.0012\left(\frac{I}{L}\right)_2$

in which:

F = force in kips acting on the rail due to low joint, track or wheel irregularities.

I = gross moment of inertia of the girder or beam under each rail in inches.

L = length of span, center to center of bearings, in inches.

At slow speeds of say 10 m.p.h. one-half of the above values may be used.

13. It is evident from these tests that a material reduction in total impact in short span bridges can be obtained by reducing the rail joint impact through the use of continuous rails or welded joints on the span.

* * *

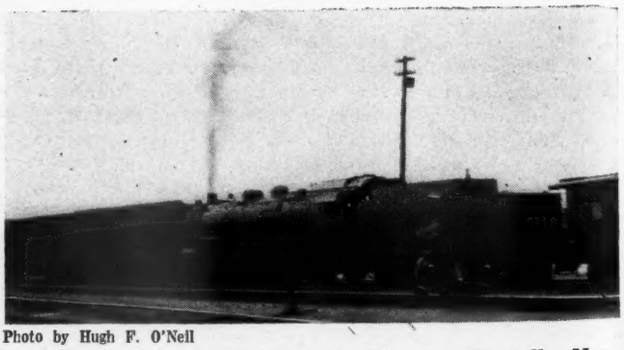


Photo by Hugh F. O'Neil

C. & N. W. Power in S. P. Pusher Service, Montello, Nev.

* Engineer Structures, New York, Central, Lines West of Buffalo.

W. J. Hanna
President

No Exhibit, But N. R. A. A. Carries On

C. H. White
Secretary

Message from president and report of secretary cite the war-time problems of members—Extend helping hand to engineering and maintenance officers

Mutual Regret

By W. J. Hanna*

MUCH to the regret of our members, the National Railway Appliances Association will hold no exhibit this year. In taking this action we are interrupting a long line of exhibits that we have presented annually coincident with the annual meetings of the American Railway Engineering Association.

As their part in the war effort, we realize that the railways are carrying the heaviest traffic load in their history, and with conspicuous success. As our part in the war effort, we manufacturers have been called upon to become an important part in the arsenal of the United Nations, while at the same time carrying the responsibility of supplying to the railways their essential needs in materials and equipment.

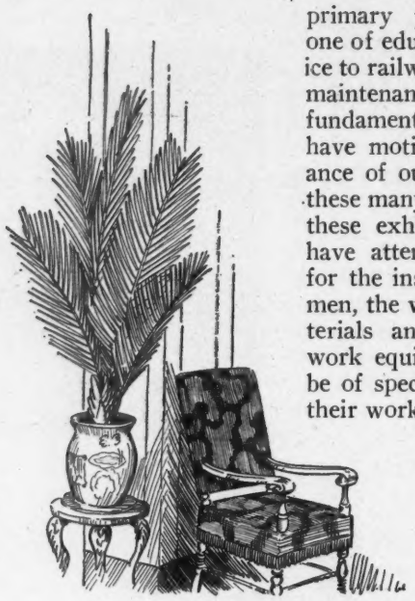
Many of our member companies are deeply engrossed in war production of one kind or another; they have turned over or converted large parts of their plants and facilities for these purposes; and, in some cases, have been called upon to enlarge their production capacities greatly to take care of this added war load. That they too are contributing in a vital way to the direct war effort, while still extending aid to the railways, is seen only too well in the fact that a number of them have been awarded the coveted Army-Navy E for achievement in the production of war equipment.

With their products and services so urgently in demand by war agencies and the railways, I am sure that railway men will agree that if the N.R.A.A. had attempted to hold its usual spacious exhibit, with all of the planning and work that this would have involved, it would have entailed an unwise diversion of effort from essential war purposes. Furthermore, with their products in such demand, and with delivery schedules far behind normal in many cases, it would have been difficult, if not impossible, to have obtained the necessary units for exhibition purposes, and even in those cases where such units are available, it is only too well known that to have attempted to transport them to and from a central exhibit point would not only have entailed unusual difficulties, but would have added further to the war-time load of the railways—and at a time when Director Eastman of the Office of Defense Transportation is urging only the most sparing use of railway facilities by the public to free them for essential war transportation.

Added to these factors which are not conducive to the holding of an exhibit this year, is the fact that, under present conditions, the personnel of many railway supply companies has been drawn upon heavily by the armed forces and other industries, and that those who remain—in production, in sales and in service—are busier than ever before—a situation that would have made it extremely difficult, if not impossible, to have spared the men necessary to conduct a worthwhile exhibit.

That these conditions prevail, making it inadvisable to hold an exhibit this year, is regretted by every member of the N.R.A.A. As I have already pointed out, lack of an exhibit this year breaks a long line of annual exhibits extending back to 1908, when our association was known as the Road and Track Supply Association—a line of exhibits broken before only in three years during the depths of the recent depression. In each of the exhibits that we have held, our

* President, National Railway Appliances Association and District Sales Manager, Republic Steel Coporation, Chicago.



primary purpose has been one of education, and of service to railway engineering and maintenance officers, the two fundamental principles that have motivated the continuance of our association over these many years. In each of these exhibits therefore, we have attempted to assemble for the inspection of railway men, the widest range of materials and actual units of work equipment designed to be of specific aid to them in their work, and have likewise attempted to bring together the most experienced personnel of our member companies to explain their products and to assist railway men in making the most effective use of them.

Mutual Value of Exhibits Recognized

That our exhibits have proved of value to railway officers, have been a source of education to them, have conserved their time, and have enabled them to discuss their problems first hand with the manufacturers, we have ample evidence. At the same time, we are not unmindful of the great value that these exhibits have been to us manufacturers, in making engineering and maintenance officers better acquainted with our products, in affording us an opportunity to answer their questions, and in permitting us to know the users of our products better, many of whom it was impossible for us to see at any other time of the year.

For all of these reasons, we share with railway officers, many of whom have expressed their feelings, the regret that there will be no exhibit this year. We regret especially that this situation will not afford us an opportunity to acquaint them with the many developments completed and in progress in the interest of improving the products and equipment designed to aid them in carrying out their work; in adopting the most suitable substitutes for critical materials no longer available. Some of these developments are pointed out in the editorial and advertising pages of this issue. Many others have been consummated and are under way, and still others will be undertaken as time and conditions permit, to make it possible for us to fill the requirements of the railways and to keep our products abreast of their needs.

It is with special regret also that, without an exhibit, we will not have the same opportunity to be of direct service to our friends in the railway field—an opportunity that we have sought in our exhibits over these many past years. But though we will be deprived of this opportunity this year, we want our railway friends to know that we have not forgotten them; that to the extent of our ability we shall continue to serve them—in their need for our products, and in their need for information that will enable them to use our products most effectively. Accordingly, we hope that railway men will continue to look to the members of our association for the help they will need in the busy year that lies ahead of them. We solicit inquiries on their part, and assure them that we will make every possible effort to continue to be of service.

As the A.R.E.A. will carry on without its annual meeting this year, so our association will carry on—both of us striving to do our part most effectively to help win the war, and both, I am sure, looking forward to the day when conventions and exhibits can be resumed.

Secretary Sees Value in Close Co-Operation

By C. H. White*

The annual meeting of the American Railway Engineering Association and the accompanying exhibit of the National Railway Appliances Association, due to their regularity over the last forty years, have been taken largely as a matter of course. However, in their character, and in the relationships that have grown out of them, they have not been routine in any sense. Each year, the specific problems of the moment have been faced and met, and there has been a constantly growing appreciation among those active in the affairs of these associations of the inter-dependence of railway engineering and maintenance officers and the representatives of the manufacturers of railway equipment, materials and supplies.

We never miss the sunshine until the shadows fall. Hence, the global war, with the ugly shadow that it casts across the length and breadth of our land, requiring the cancellation of both the A.R.E.A. annual meeting and the associated exhibit of our association, brings forcibly to our minds the many advantages that have been gained in the past through these functions and

* Secretary, National Appliances Association and District Sales Manager, Industrial Brownhoist Company, Chicago.

through the close association of our two organizations. We of the supply industry are highly conscious of our debt to railway engineering and maintenance officers, not alone because of their purchase and use of our products, but also for the assistance they have given and continue to give us in the development and improvement of these products. At the same time, we of the supply industry take pardonable pride in the help that we have rendered railway engineering and maintenance officers in meeting and overcoming the problems that have confronted them in bringing the present railway transportation system of the country to such a high state of perfection.

A review of the last decade shows clearly the many advantages gained in the mutual contacts that we have been afforded at our March meetings; we have benefited not only as organizations, but also as individuals, and the bond between us has been strengthened with each passing year.

Our association has a membership of 98 companies, representing the manufacturers of practically every type of equipment, material and supplies employed by the engineering and maintenance forces of the railways, and today this membership is near an all-time high. Furthermore, the financial statement of the association, which will be published at the end of our fiscal year, March 31, will show our association to be in a highly favorable position. As a part of this report, I list the names of our current members as follows:

National Railway Appliances Association Membership

Adams & Westlake Company
Air Reduction Sales Company
American Car and Foundry Company
American Fork & Hoe Company
American Hoist & Derrick Company
American Nut & Bolt Fastener Co.
Armco Railroad Sales Company
Austin-Western Road Machinery Company
Barco Manufacturing Company
Bethlehem Steel Company
Buda Company
Caterpillar Tractor Company
Chicago Pneumatic Tool Company
Chipman Chemical Company
Cleveland Frog & Crossing Co.
Consolidated Equipment, Inc.
Cook, Howard P., Company
Crerar, Adams & Co.
Creepcheck Company, Inc.
Cullen Friestedt Company
Dearborn Chemical Company
DeSano & Son, A. P., Inc.
Dickinson, Paul, Inc.
Duff-Norton Manufacturing Company
Eaton Manufacturing Company (Spring Washer Div.)
Elastic Rail Spike Corporation
Electric Tamper & Equipment Co.
Fairbanks, Morse & Co.
Fairmont Railway Motors, Inc.
Frog Switch & Mfg. Company
Gary Screw & Bolt Company
General Electric Company
Hayes Track Appliance Company
Hogan, George M., & Co.
Homelite Corporation
Hoosier Waste Renovating Company
Hubbard & Co.
Industrial Brownhoist Corporation
Ingersoll-Rand Company
Inland Steel Company
Johns-Manville Sales Corporation
Jordan, O. F., Company
Kalamazoo Railway Supply Company
Kerite Insulated Wire & Cable Co., Inc.
Lehon Company
Lewis Bolt & Nut Co.
Lundie Engineering Corporation
Maintenance Equipment Company
Mall Tool Company
Massey Concrete Products Corporation
Master Builders Company
Metal & Thermit Corporation
Morden Frog & Crossing Works
Morrison Railway Supply Corporation
Murdock Mfg. & Supply Co.
National Aluminate Corporation
National Lead Company
National Lock Washer Company
Nichols Engineering Company
Nordberg Manufacturing Company
Northwestern Motor Company
Oxweld Railroad Service Company
P. & M. Company
Pettibone Mulliken Corporation
Philadelphia Steel & Wire Corporation
Pocket List of Railroad Officials
Positive Rail Anchor Company
Pyle-National Company
Q & C Company
Rail Joint Company, The
Railroad Accessories Corporation
Railroad Products Company
Rails Company
Railway Age
Railway Maintenance Corporation
Railway Purchases and Stores
Railway Track-Work Company
Ramapo Ajax Division, American Brake Shoe & Foundry Co.
Republic Steel Corporation
Rust-Oleum Paint Corporation
Snow Construction Company, T. W.
Sperry Products, Inc.
Stanley Electric Tool Division—The Stanley Works
Syntron Company
Taylor-Wharton Iron & Steel Co.
Teleweld, Inc.
Templeton, Kenly & Co.
Timber Engineering Company
Union Switch & Signal Co.
United States Steel Corporation
United States Wind Engine & Pump Co.
Warren Tool Company
Western Railroad Supply Company
Westinghouse Electric & Mfg. Co.
Woodings - Verona Tool Works
Woolery Machine Company
Worthington Pump & Machinery Corp.
Youngstown Sheet & Tube Co.

The National Railway Appliances Association is continuing its activities through its regular Board meetings, and I know that I express the earnest hope of each member of our association that world conditions will soon be such that the annual meetings of the A. R. E. A. and the exhibits of our association can be resumed.

New and Improved Products of the Manufacturers

Increased Rail Testing Yields Smaller Fissures

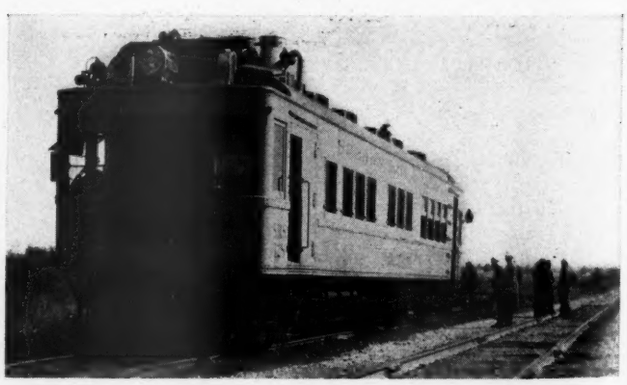
Increased traffic, heavier wheel loads and higher train speeds on the railways today, all of which are factors in the development and growth of transverse fissures in rails, are leading to the more extensive and frequent use of Sperry rail service to detect these hidden defects and to make their removal from the track possible before they become a serious hazard. The justification and value of this more intensive testing are being demonstrated both by the relatively large number of defects that are being found under the shorter intervals of testing, and by the definite tendency under repeated testing to detect fissures and other hidden defects before they have had an opportunity to develop to a dangerous stage.

The more intensive testing is being done in accordance with three quite definite plans. One of these that is being adopted by a number of the shorter roads that have experienced a general increase in traffic over their entire lines is to shorten the interval of testing arbitrarily from once in twelve months to once every eight, nine or ten months. A second plan, which is being adopted by roads of intermediate size, which have experienced increased traffic on parts of their lines, calls for the testing of all main-track mileage at 12-month intervals, and the testing of those territories of heaviest traffic a second time midway between the other tests. A third plan that is being adopted by at least a few roads is the almost continuous testing of their lines of intensive traffic, with less frequent testing of those lines carrying lighter traffic.

A specific example of the adoption of the first plan mentioned, and of the results being found, is afforded by a road that prior to 1942 had been regularly testing about 600 miles of track once each year, but which in 1942 reduced the interval of testing to nine months. In 1940, about 20.8 fissured rails were found per 100 track miles. In the test in 1941, after an interval of 13 months, the rate increased to 32.3. In 1942, when the track was tested again after an interval of nine months, the fissured rails found increased to 34.5. Thus, it appeared that slightly more fissured rails had developed in the nine-months' period than in the 13 months previous. Incidentally, the traffic carried in the nine months was approximately the same as in the preceding 13 months.

Adopting the second plan of testing referred to, a large road tested its most important main tracks after an interval of six months, these tracks carrying the heaviest traffic and comprising approximately 70 per cent of its total mileage. Owing to the increased volume of traffic, the rate of fissured rails found increased slightly on the repeat test, but the most significant disclosure of the repeat testing was the fact that 30 per cent more of the fissures detected were of the smaller sizes than during the previous test, and the number of large and cracked-out fissures 30 per cent less.

The effectiveness of the still more intensive testing involved in the third plan mentioned is seen best in the experience of one road that has followed this plan for more than three years on a vital section of track carrying intensive traffic, on which it has been considered essential to exercise every precaution against derailments due to broken rails. On this road, the track involved is now tested according to a carefully planned program every 60 to 90 days, the specific interval between testing

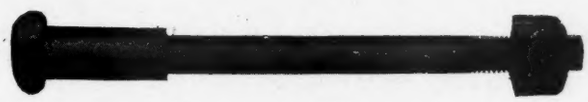


Many Roads Are Increasing the Amount and Frequency of Testing With Sperry Equipment to Weed Out Transverse Fissures in the Early Stages of Their Development

varying more largely with the unforeseen and unavoidable delays encountered by the detector cars than for any other reason. The important disclosure in this testing is that the percentage of small fissures detected is frequently as high as 92 per cent of the total, while the proportion of large and cracked-out fissures has repeatedly been as low as 1 per cent.

PMCO Shoulder Bolts

The Pettibone Mulliken Corporation, Chicago, has placed on the market five types of one-piece shoulder bolts with integral shoulder construction for use in various types of heel joints, guaranteeing continued free movement in the operation of split switches, slip switches, spring switches, split switch point derails, movable point crossings and spring rail frogs. They are



The Type C Shoulder Bolt

The Type A Shoulder Bolt

said to be especially desirable at interlockings and spring switches where free joint action is essential.

The shoulder bolts are a one-piece unit with the shoulder forged integral with the shank. They are designed to permit the joint bar assemblies at the heel of switches to be fully tightened to maintain strength and yet guarantee free joint movement. The new bolts replace the former two-piece assembly of bolts with thimbles which were frequently the cause of trouble, since the thimbles, even though case-hardened, would crack, rust, crush and corrode and were often forgotten in assembly, with the result that stiff heel joints would cause a switch to work hard. Such conditions cause trouble at mechanical interlockings, spring switches, etc., and have been known to cause derailments when crews are making a flying switch.

Dearborn Anti-Foam Stabilizer Treatment

A new water finishing treatment, known as the Dearborn Anti-Foam Stabilizer Finishing Treatment, has been developed by the Dearborn Chemical Company, Chicago, to improve the quality of any boiler feed-water. The new treatment is designed to improve boiler waters in four ways: (1) By controlling foaming; (2) by preventing scale deposits in distribution and feed lines; (3) by preventing corrosion in boilers; and (4) by reducing blow-off losses.

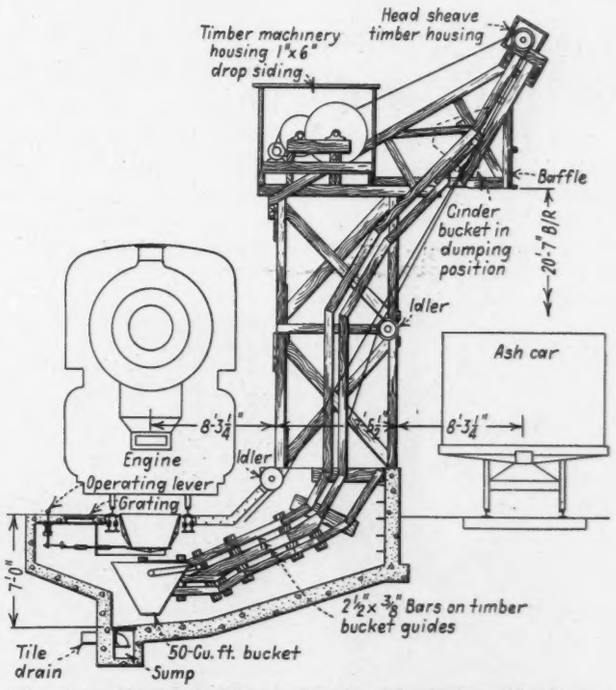
The basis of the treatment is the use of a non-saponifying stabilizer in dry powder form, which is based on a complex high molecular weight amine derivative developed in the Dearborn laboratories. This product does away with the use of castor oil and is said to be many times more efficient than the former Stabilizer Finishing Treatment announced by this company in 1938.

The stabilizer can be added directly to the clear, softened water from limesoda or zeolite treating plants or it can be added directly to the water in the engine tenders. Because of its non-saponifying characteristics, the new treatment does not cotnaminate the boiler water with a residual soap, the anti-foam effect is greatly prolonged and it can be mixed directly into wayside chemical vats already containing highly alkaline anti-scale treatment. The foam control effect of the stabilizer finishing treatment is not impaired and the utility of existing wayside chemical feeding plants is greatly increased by being able to provide an anti-scaling treatment with non-foaming characteristics. The powdered stabilizer is designed to dissolve and be self-mixing in the cold tender water, and where it is added directly to the water in tender tanks, it is handled by the engine crews. Application of this treatment is said to be much safer and more convenient from the standpoint of enginemen than where the chemicals must be dissolved first in hot water.

New N. & W. Cinder Handling Plant

A new N. & W.-type mechanical locomotive cinder handling plant, designed to afford a saving of 7½ tons of critical structural steel, has been built by the Ross and White Company, Chicago. Practically all steel has been eliminated and a timber supporting structure is embodied in the single-track unit which, however, can be extended to two or more tracks.

Included among the basic features of the plant are the following: A 12-ft. receiving hopper of cast iron equipped with a cast iron control gate; track girders of old rail furnished by the railway company and welded together in its shops, and an elevating bucket (50 cu. ft.) made of ¼-in. steel plate with rollers operating between

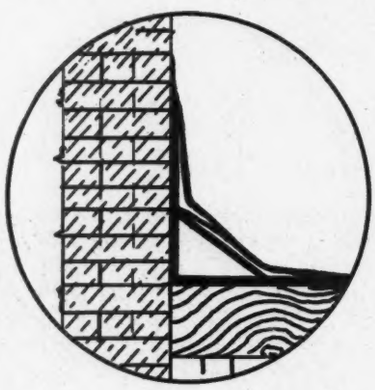


The New N. & W. Cinder Plant with Timber Members Saves 7½ Tons of Critical Structural Steel

timber guides. In addition to the supporting structure, the bucket guides are of hardwood timber and run on ⅜-in. steel bars. The hoist has a motor and control installed beneath the timber protecting house on the structure, and the unit operates by a push button in a cast iron cover located near the ground level for the convenience of the operator. The hoist is a gear-reduction type operating in oil and is connected to an open-type sleeve-bearing 10-hp. motor. The entire structure is painted with fire-resisting paint as a safety measure.

Flashing Repairs

Using a method devised by the Flexrock Company, Philadelphia, Pa., worn-out flashings may now be repaired without the use of lead or copper. This method involves an application which is said to constitute a permanent replacement and which adheres tightly



Illustrating the Flexrock Method of Repairing Worn-Out Flashings

to all types of industrial roofs, including corrugated iron. It is claimed that the new method is easy to follow and that, if desired, a quick brush application can be made over the entire roof with equally good results.

Jordan Spreader-Ditchers for Russia

The O. F. Jordan Company, East Chicago, Ind., is building 18 heavy-duty Type A Jordan spreader-ditcher-snow plows and spare parts, to be shipped to the U. S. S. R. for the maintenance and rebuilding of the Russian railroads. The company had previously furnished a single unit to the U. S. S. R. in 1936, and a year later a picture appeared in a Russian publication, showing the unit in operation as a snow plow on the Trans-Siberian Railway.

In general, these spreader-ditchers are similar to the Type A ditchers used on American railroads, except for the wider track gage, the special Russian automatic-type couplers and the Continental buffers. They incorporate several unusual and interesting features, however. The units are designed to cut eleven different roadbed cross sections, ranging from 15 ft. 5 in. to 20 ft. 8 in. in width, with a total wing spread of 46 ft., while in this country the railroads usually specify two roadbed sections, namely for main lines and for branch lines.

Each spreader-ditcher-snow plow on this order is completely assembled and inspected, tested and accepted by U. S. government inspectors. The unit is then disassembled and crated for export. A single shipment consists of 23 pieces, weighing 72 tons and requiring two 52½-ft. gondola cars for transportation to the seaboard.

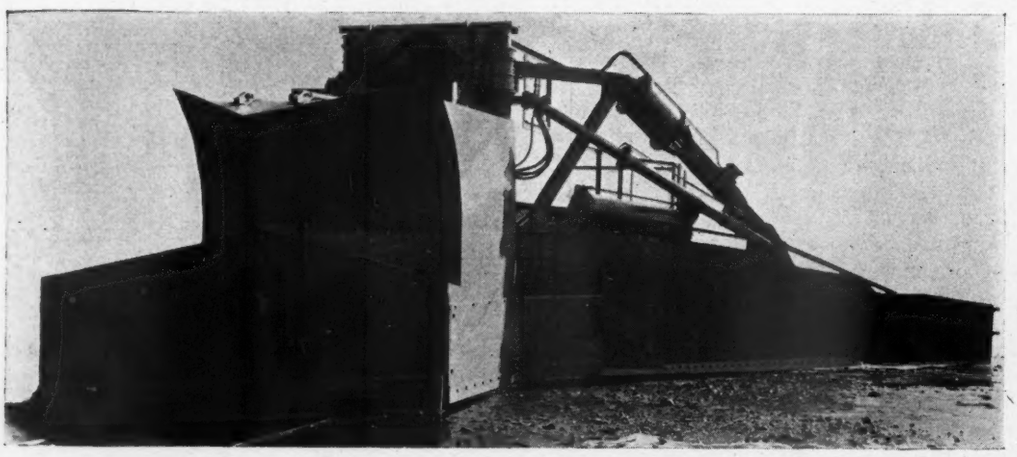
Training Women to Run Industrial Trucks

An interesting example of the effort being made to alleviate the manpower shortage in shops and industrial plants is the program developed by the Elwell-Parker Electric Company, Cleveland, Ohio, for training women to operate power industrial trucks.

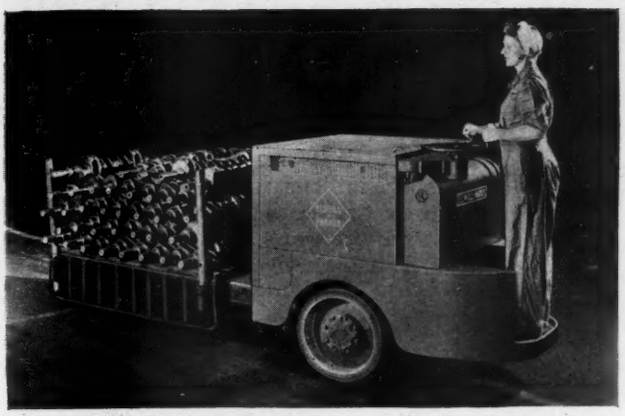
Before developing this program, the company made a survey to determine the possibilities of training women for this work and replies revealed that many were already doing so, while hundreds of executives requested detailed information. As a result the company has produced a pamphlet that delivers technical instruction in an easy conversational style and is also co-operating actively with plant managers in 25 cities through its field engineers in training temporary women replacements.

The pamphlet is interestingly written and the title sounds the keynote—"Lady, will you give a lift?" The sequence following emphasizes that the woman who does a first-class job of running a truck in a war plant is accomplishing a great deal more than merely operating a machine during an eight-hour shift.

"You are pinch-hitting for an enlisted man" says the introduction, and succeeding chapters remind the reader that as a truck operator she is carrying a vital responsibility in the war effort:—"You are going into a key job at the time your country needs you most." "War jobs can be 'grounded'—just waiting for your truck." "As



One of the New Jordan Spreader-Ditcher - Snow Plows Built for the Russian Government



An Experienced Woman Operator with An Elwell-Parker Industrial Truck

easily as you first learned to drive a car." "Treat the truck with kindness—your boss will need it for a long time!"

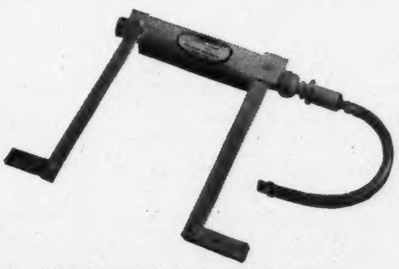
Continuity is maintained through large photographic illustrations of women at the truck controls, with detailed though chatty directions on starting, steering, hoisting, lowering and other mechanical operations. The various safety provisions are explained in detail and the text closes with a checklist of "do's" and "don'ts."

In having its field engineers direct the training courses, the Elwell-Parker Electric Company had in mind that the original installations of power trucks in the various shops and plants were planned and supervised by these field engineers, who have a continuing interest in their efficient performance.

Bottled Gas Switch Heaters

Marvel Equipment Manufacturers, Inc., Chicago, has developed a bottled gas heater, which is used to heat switches, movable point frogs and car retarders in times of heavy snowfall or blizzards to prevent accumulations of snow and ice. The heaters will burn Butane, Dri-Gas, Propane, Pyrofax, Philgas, Shelgas, etc.

The bottled gas heater consists of a small cylindrical gas burner unit, 14 in. long, which has a total of about



The Bottled Gas Heater Unit

90 holes for gas jets in the upper part of the heater unit. It is protected by a curved metal shield which prevents the flame from being blown out by the wind and which also serves to confine it to prevent damage to ties and to disperse the heat.

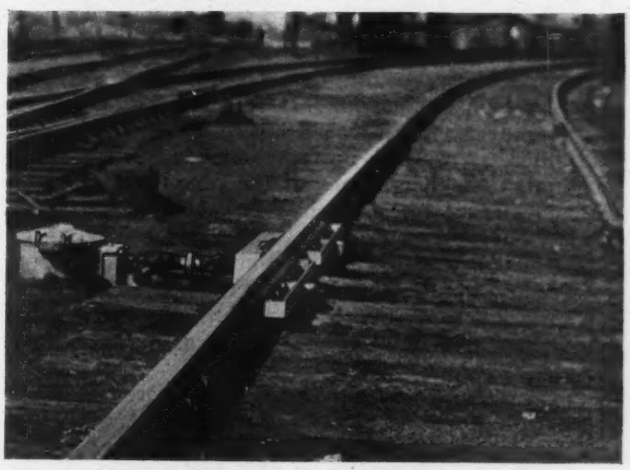
The heating units are connected to the gas line by a 12-in. length of rubber hose attached to one end. The gas line is, in turn, connected to a buried tank nearby. The heating units are fastened in place by metal arms which can be set at an angle and which extend over the top of the tie on each side of the rail. They are placed under the base of the rail in the space between the ties and at right angles to the center line of the rail.

Eight heaters, four under each switch point, are usually installed at a switch. Each unit is said to burn less than a pound of gas an hour, which at the present cost of bottled gas at one cent a pound in 200-lb. tanks, enables a single switch to be heated at a cost of less than 8 cents per hour.

The heaters have also been used successfully to keep hump yard retarders working during severe blizzards.

Rail Lubricators Demonstrate Advantages

Among the records of performance that Meco rail and flange lubricators, manufactured by the Maintenance Equipment Company, Chicago, are continuing to build up in permitting increased tonnage ratings on territories where the curvature governs such ratings, is that gained on a 200-mile stretch of single-track, with two-way traffic, curvature between 3 and 4 deg., and grades up to 1.75 per cent, on which it was possible to



Meco Lubricators Prolong the Life of Curve Rail and Wheel Flanges in Terminal Areas

increase the train tonnage by approximately 5 per cent following the installation of 43 Meco lubricators.

Prior to the installation of the first machines on this territory in 1941, trains of 40 loaded cars produced the maximum tonnage that could be handled, while, following the installation of lubricators on the entire territory, it was found that the same locomotives could easily handle 42 loaded cars. To effect a conclusive check of the effect of the lubrication on the increase in tonnage, all of the lubricators over the territory were cut out of service for a sufficient period for the rail to become dry. Immediately, the maximum number of cars that could be handled dropped back to 40, only to rise to 42 cars when the lubricators were restored to service.

The effect of the lubricators in reducing wear on the high rails of curves, and on the outer rails of turnout leads, is demonstrated in the results of the installation of 13 machines in a large passenger terminal. Prior to the installation of the machines, the track department had been given a monthly allowance of $1,000 for renewing or transposing turnout rails and the high rails on curves. Subsequent to the installation of the lubricators, this al-

lowance was reduced sharply and was then discontinued entirely as the life of the curve rails was extended to practically that of adjacent tangent rails.

That there is a comparable decrease in the wear of wheel flanges in lubricated territory is seen in the record in this regard at another large passenger terminal, where the normal mileage of 20,000 between the turning of wheels was increased to more than 60,000 following the installation of lubricators. Furthermore, in this terminal area, which has curves up to 16 deg., train speeds were increased safely following lubrication, and curve rail that frequently had to be changed out every seven to nine months prior to lubrication, is now in track after five years' service.

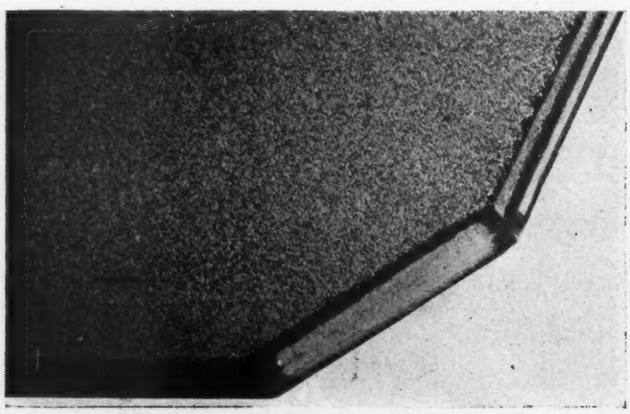
New Celo-Siding Wall Surfacing Material

The Celotex Corporation, Chicago, has perfected an exterior wall surfacing material, known as Celo-Siding, for emergency wartime structures, which has been used in the erection of commercial, industrial and farm buildings.

Forming a combination of insulation, sheathing and siding, Celo-Siding is ⅞-in. thick, 2 or 4 ft. wide, and 8 ft. long. It has a cane fibre core which is protected against termites and dry rot by the manufacturer's Ferox process, the core being coated on all sides and edges with an asphalt compound. An additional coating of high-grade asphalt, in which mineral granules are firmly embedded, is worked into the outside surface of the material. The long edges of the boards are equipped with tongue and groove joints and they are applied directly over wood studs spaced on 16 or 24-in. centers.

The new material is available in three surface colors—brown, buff and green, and the permanence of the granule surface is similar to that employed on other materials which have shown a successful record of performance. The new product requires no painting.

It is claimed that Celo-Siding is no more costly than wood siding applied directly to the studs and painted, and is a satisfactory substitute for several types of materials now on the critical list or not readily available. It is easily applied by a carpenter and requires no special technique. Included in the buildings on which the new product may be used are prefabricated buildings, railroad right-of-way buildings, temporary construction sheds, etc.



Celo-Siding Is a Combination Insulation, Sheathing and Siding

New ¼-In. Skildrill

Skilsaw, Inc., Chicago, has produced a new ¼-in. electric Skildrill known as Model 47, which is designed for heavy-duty production drilling in steel up to ¼ in. thick and in ½-in. wood. The Model 47 weighs 3½ lb., is 7¼ in. long and 2 9/16 in. wide. It is a pistol grip type of drill with a die-cast body and is equipped with helical-cut gears and anti-friction bearings throughout. It has a universal motor, available in four speeds—1,800, 2,500, 3,500 and 5,000 r. p. m.—to adapt it to various types of drilling work and is controlled by a two-pole momentary contact switch with a lock for continuous operation.

The Model 47 Skildrill

New Nalco Anti-Foam Treatment

As the result of research to develop an anti-foam treatment that will be definitely superior to the castor oil type of treatment used previously to control the steam quality produced in locomotive boilers, the National Aluminate Corporation, Chicago, has developed Nalco Special D. This treatment, which involves the use of chemicals in powder form, was announced last summer after considerable experience in actual service on a number of roads. It is easily and safely administered and, because of its properties, can be used to gain additional locomotive miles with reduced time out for boiler washouts.

For years, many roads have had one or two water stations on various divisions, the water of which required some special treatment to avoid foaming difficulties, and the conventional castor oil treatment has been used in such instances. However, with this type of treatment, it was necessary to continue its use, once started, until the boiler could be washed, because the saponification of the oil in the boiler increased the tendency to foam and required additional castor oil to control this tendency, thus introducing a vicious cycle.

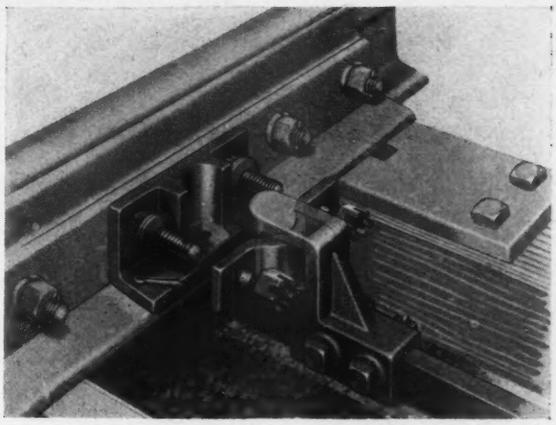
Because of the difficulties inherent in the use of castor oil, the research of this company was directed toward producing an anti-foam treatment with the following properties: (1) The treatment must be "non-habit forming"; (2) it must be made up in powder form; (3) it must dissolve rapidly and disperse completely in cold water and not separate out after long periods of standing; (4) it must remain effective in the boiler for an appreciable period without additional treatment; and (5) the treatment must be compatible with standard water softening and conditioning material.

Nalco Special D, which has been developed as a result of this research, is said to meet all of the above five

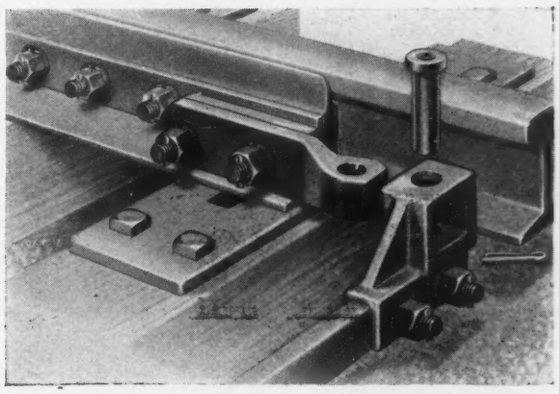
requirements. It has been used to treat water in locomotive boilers in a wide variety of combinations in some of the worst water territories in the United States and is said to have prevented carryover at the highest concentrations encountered in these territories. It has also been used to treat water at one or two "bad water" stations on runs of more than 1,000 miles and normal blowdown is reported to have taken care of the boiler water concentration at all other stations.

In switching service and on freight locomotives where long waits are often encountered due to operating conditions, it is said to have proved its ability to remain effective in the boiler water for long periods of time. Such locomotives, it is claimed, after long periods of standing, have been started and worked hard without carryover, and without replenishing the treatment prior to starting by means of operation of the injector or feedwater pump.

A special feature of the new treatment is the safety factor involved in its use from the standpoint of the engineman, it being pointed out that it is a great deal safer for the engineman to put a small package of the new powder treatment into his pocket and to climb up onto the tender, than it is for him to mix paste material with hot water in a bucket in the cab of the locomotive, and then carry it down the gangway, along the track, and thence up on top of the tender tank.



Showing the Swivel Design and the Rod and Clip Assembly at One End of a Type M Rod



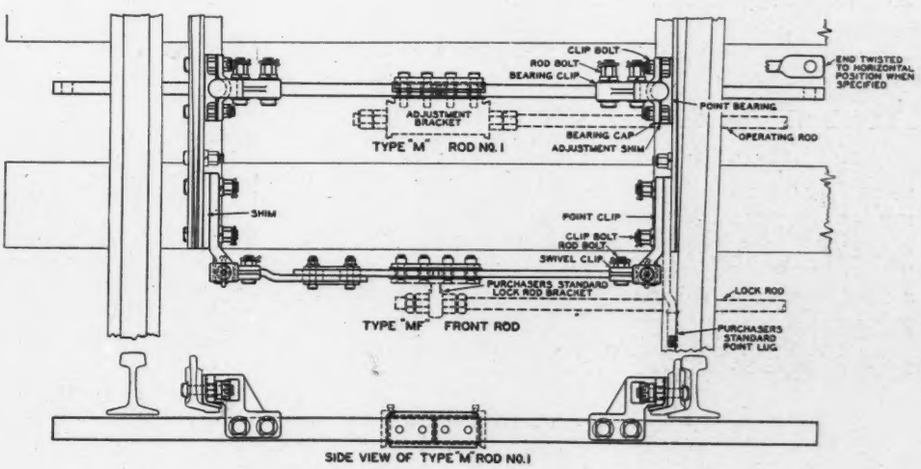
Showing the Swivel Design and the Rod and Clip Assembly at One End of a Type MF Rod

Switch Rods and Clips Developed by Ramapo Ajax

The Ramapo Ajax Division of the American Brake Shoe & Foundry Co., New York, has designed two new switch rods and clips, Types M and MF, to provide greater strength for high-speed turnouts and to meet the requirement of the Interstate Commerce Commission that an interlocked switch "shall be so maintained that it cannot be locked when a ¼-in. rod is placed between the stock rail and switch point 6 in. back from the point of switch."

The new Ramapo switch rods and clips are said to be unusually strong and well-designed. The rods are used on edge with the principal cross sectional dimension in a vertical plane, which provides additional strength to prevent rolling or overturning of the points. They are fastened to specially designed clips with a long journal and bearing which in turn are attached to the switch points at the highest point possible and yet still provide clearance for wheel flanges, thus assuring greater resistance to any force tending to roll or overturn the points. A special swivel design of the connection point between the switch rods and clips permits easy movement and operation and eliminates strains in the switch assembly. The entire assembly is accurately machined and fitted to eliminate lost motion and large bearing surfaces assure slow wearing and long service life. The clips can be tightened without affecting the swivel action.

The Type M switch rods and clips are for standard switch rods and the Type MF are for front or signal rods. The Type MF rods and clips will fit any points

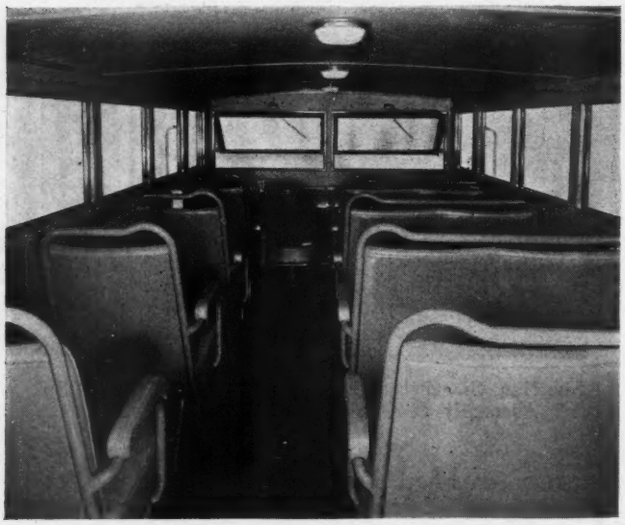


Assembly Drawing of a Switch Equipped with Type M and MF Switch Rods and Clips

and design of switch. Although they were designed for use in machine-thrown switches, manual or power operated, they are also recommended for hand-thrown switches when adjustment of throw is provided and in general for high-speed switches in which the assembly of moving parts should be as strong as possible.

Kalamazoo No. 65 Official Inspection Car

The Kalamazoo Railway Supply Company, Kalamazoo, Mich., has redesigned the interior of its No. 65 Inspection Car and it is now equipped with semi-elliptic springs to increase the riding comfort. The car is equipped with a 90-hp. Ford V 8 engine with a standard selective gear transmission coupled to a reversing mechanism, allowing equal speeds in either direction. The windows are all of shatter-proof glass. The car can be equipped with air brakes or vacuum-type brakes and a turntable is mounted on the main frame of the car. The turntable is operated by a hydraulic jack and a pump located on the step of the car. When raised on the turntable, the car can be turned easily by two men. The car is built with three types of bodies to accommodate 9, 12 or 15 passengers.



Interior View of a 12-Passenger No. 65 Inspection Car

Armco Aluminized Steel

A new specialty sheet metal, known as Armco Aluminized Steel, has been introduced by the American Rolling Mill Company, Middletown, Ohio, for use in products requiring unusual resistance to heat and corrosion. This material is in the form of an aluminum-coated sheet with a mild steel base and is said to combine the surface advantages of aluminum with the strength of steel.

According to the manufacturers, corrosion resistance of the surface is equal to that of an aluminum sheet because a tight oxide film, which is self-healing and inert, forms on the surface when it is exposed to corrosive attack. The metal is passive in most atmospheres and resists "pin-holding." The material also has the ability, it is claimed, to withstand temperatures up to 1,000 deg. F. without discoloration, and at even higher temperatures will resist severe oxidation.

The aluminum coating of the sheet will not flake in moderate forming or drawing operations and, although it holds paint well, the unpainted surface is satisfactory for most purposes. After the war it will be available in a finish that can be buffed to a bright luster for exceptionally good appearance and reflectivity.

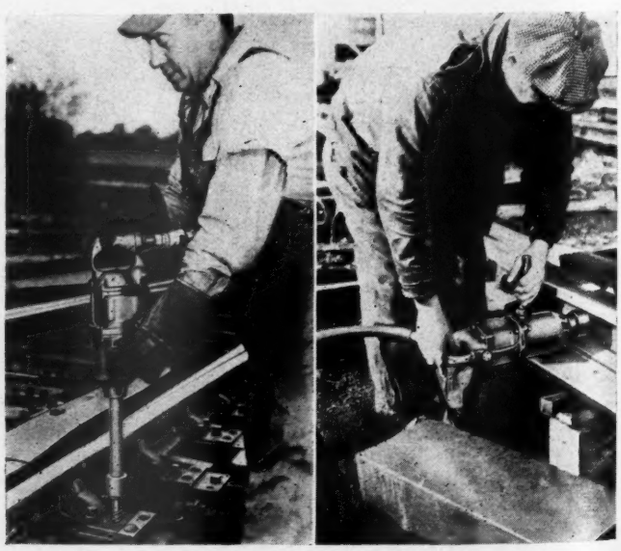
Although Armco Aluminized Steel has all the surface qualities of aluminum, a 16 gage sheet of the coated steel uses only five per cent as much of the lighter metal as a solid aluminum sheet of the same thickness.

Impact Wrench Put to New Uses

During the last year or so a number of railroads have developed several new applications of the Model 365-RP impact wrench that is manufactured by the Chicago Pneumatic Tool Company, New York. Originally, this wrench found its widest application in railroad maintenance in bridge work, being used extensively for applying and removing fitting-up bolts in the construction and repair of steel bridges and timber trestles.

More recently a number of railroads have found that the 365-RP impact wrench has definite advantages for use in applying and removing screw spikes and lag screws, and in assembling and dismantling frogs and switches when making repairs. In connection with the latter work, the wrench has been used most widely to date in making repairs in railroad frog and switch shops, although under certain conditions it has also proved advantageous when the work is done in track.

For use in the types of work mentioned above, the wrench has been found to have a number of advantages. In the first place, being a pistol-grip unit weighing only 30 lb., it requires only one man for its operation, who, it is said, is able to attain a high output, especially when



Left—Driving Screw Spikes With an Impact Wrench. Right—The Impact Wrench Has Also Been Found Advantageous for Assembling and Dismantling Frogs and Switches When Making Repairs

applying or removing screw spikes or lag screws. Secondly, there is the added factor of safety due to the absence of torque. In frog and switch work, the machine is used for applying and removing bolts up to 1⅜ in. in diameter. For this work the value of the wrench is said to lie largely in its economy due to one-man operation. Also, because of its design and method of operation, it is said to be able to remove nuts that otherwise would have to be burned off, thereby making it possible to salvage them.

New Benjamin Floodlighting Projectors

To meet wartime requirements for protective floodlighting and the lighting of yards, areaways, etc., the Benjamin Electric Manufacturing Company, Des Plaines, Ill., has introduced its new Type RDS floodlighting projectors, which embody all the features of previous models of the Type RD projectors, with the exception that all parts formerly made of aluminum, brass or other non-ferrous metals are now furnished in steel or cast-iron specially treated by porcelain enameling and other rust-proofing to make them resistant to weathering and corrosive atmospheres.

These new models have a seamless steel housing, a silvered-mirror crystal glass reflector, an adjustable beam which makes it possible to fit the beam to the requirements of the installation and a special focusing mechanism to place the light exactly where needed without waste. They are designed so that they can be installed easily and maintenance and lamp changes are facilitated by quick acting safety-type cover clamps. The units are furnished with vertical and horizontal stops, which automatically reposition the projector and eliminate the need for resetting after it has been tilted or turned for cleaning or inspection.

The New Type RDS Floodlighting Projector

The new RDS units are available in two models; the RDS 14, for 300-watt and 500-watt general service or 500-watt floodlighting lamps; and the RDS 18, for 750-watt and 1,000-watt general service or 1,000-watt floodlighting lamps.

Each model is supplied with plain, stippled or ribbed heat-resisting glass covers.

Substitute Welding Rod

Developed to fill the need for a welding rod containing no critical alloying elements, Railroad Rod No. X has been introduced by the Air Reduction Sales Company, New York. It is claimed that the new substitute rod replaces, and will serve the same purpose as, the regular Airco railroad welding rod, and it has been used successfully in building up worn rail ends, frogs, and switch points and in other applications where a wear-resisting surface is required.

Railroad Rod X Is a Substitute Welding Rod Said to Contain No Critical Alloying Elements

Railroad Rod No. X is said to have satisfactory flowing qualities under the oxyacetylene flame and to have a slightly lower Brinell hardness in the original deposit than the regular railroad rod, but it work-hardens to practically the same hardness in an unusually short time, because of the density of the weld metal. The substitute rod is also said to respond well to heat treatment and tests have shown that when switch points or rail ends are built up with this welding rod, the subsequent heat treatment procedure should be the same as that used with the regular rod.

Teco Construction Saves Steel for the War

A large number of railroad and war projects have used timber construction during the last two years for the reason that timber used with one pound of steel in the form of Teco connectors, bolts, washers, column fastenings and miscellaneous angles takes the place of 13.4 lb. of structural steel.

During 1942, the Timber Engineering Company, Washington, D. C., received 89 orders for connectors from 17 different railroads for roof truss, trestle, wharf and dock construction, as well as many large orders for various types of war construction. During the period from January 1, 1941, through December 31, 1942, conservative estimates, made after consultation with War Department engineers, indicate that 580,000 tons of structural steel was saved by Teco construction.

Probably the largest project connected with railway

work was the construction of more than 40,000,000 sq. ft. of warehouses by the U. S. Army Engineers in conjunction with various railroads to provide temporary storage for material awaiting transhipment. One of the largest of these projects was at Voorheesville, N. Y., where more than 1,000,000 sq. ft. of warehouse space was constructed. The timber trusses for this job were fabricated at Portland, Ore., by Timber Structures, Inc., and then shipped knocked down across the country. It is estimated that 150,000 tons of steel were saved in this warehouse program by the use of Teco timber construction.

New Thor Drill in Plastic Housing

The Independent Pneumatic Tool Company, Chicago, has developed a new line of Thor ¼-in. portable electric drills, featuring a housing made of plastic which are said to provide greater strength and protection from shock and more power per pound of weight. The plastic housing does not support any operating parts of the drill, but serves only as a protective shell for the entire unit; the bearings, gears, stator, centerplate and other internal parts being supported by an inner skeleton frame of metal which insures close tolerance in alignment of parts.

One of the New ¼-In. Thor Drills with Plastic Housing

The field case, gear case and grip handle are made of a plastic known as Thorite. The field case is held in a keyed position against the metal centerplate and is locked by the grip handle which, in turn, slides over the end of the skeleton frame and is fastened directly to it by screws.

The gear case is held in position with a metal protection nut, threaded directly to the frame and locked against the centerplate.

The new drills are available in three speeds as follows: The Thor U14K, at 2,500 r. p. m.; the Thor U13K, at 3,750 r. p. m., and the Thor U12K, at 5,000 r. p. m. The unit weighs 3 lb. 3 oz., and is 8 3/16 in. long.

Buda Shop Truck

The Buda Company, Harvey, Ill., has developed a speedy ½-ton industrial shop truck, known as the Chore Boy, for handling baggage and mail in terminals, pick up and delivery work in shops, freight transfer work and storehouse work, which can be operated easily and safely by either a man or woman worker.

The Buda Chore Boy weighs 800 lb., has a load capacity of 1,000 lb. and a loading space of 12.8 sq. ft. The machine is equipped with a large, all-steel anti-skid deck and a rounded front bumper so that it can pass through swinging doors unassisted. It has a simple, friction drive to assure flexibility of control, with one speed forward and one speed in reverse, and is powered by a four-cycle, air-cooled one-cylinder engine with a magneto ignition. It has a foot throttle speed control and is said to have quick acceleration and to handle easily at all speeds. It has a maximum speed of 15 m. p. h. and is said to operate all day on one gallon of gasoline, averaging from 35 to 38 miles on that amount of fuel. The truck may be turned completely in a 7-ft. 3-in. radius and operates easily in narrow aisles because its overall width is only 37 in.

The Buda Chore Boy ½-Ton Industrial Shop Truck

Other features claimed for the Chore Boy include a brake which is automatically applied when the operator leaves the truck seat, an electrically-welded steel frame with spring cushioned seat and back rest, 16-in., 6-ply heavy-duty pneumatic tires and a hinged cover and seat which can be raised quickly for easy access to the engine and operating mechanism.

New Air-Filtering Respirator Cartridge

The American Optical Company, Southbridge, Mass., has developed a new air-filtering cartridge for its R-1000 respirator, which protects lungs against pneumoconiosis-producing, and nuisance dusts. The face of the respirator contains a compartment into which a cartridge can be inserted, seven of which have now been designed for interchangeable protection

Seven Workers Equipped with the Same Type Masks, but Each with a Different Type of Cartridge for Protection Against Various Types of Dust Fumes, Vapors and Gases

against respiratory hazards faced by workers. The other cartridges protect against toxic dust developed in grinding and crushing various specific metals; dusts in mining, quarrying, tunnelling and metal processing; low concentrations of light organic fumes such as vapors from paint spraying, degreasing, cementing or from gasoline, naphtha, turpentine, etc.; low concentrations of acid gases; low concentrations of combined acid and organic gases; and against nuisance concentrations of ammonia only.

Buda Crossing Gate

Designed to conform to railroad and state highway requirements governing safety, visibility, construction and operation, a new railroad crossing gate, known as the No. 70, has been developed by the Buda Company, Harvey, Ill. The Model 70 is a weatherproof, post-mounted gate which can be mounted

The New Buda No. 70 Crossing Gate

on any standard 4, 5, or 6-in. signal or flasher post without requiring a specially constructed foundation or mechanism.

The unit is an electrical, gravity-lowering gate which can be controlled automatically or manually and which is operated by a ¼-hp. electric motor on any standard current or voltage. The arm-lowering speed is controlled by a readily adjustable, variable speed hydraulic dash pot mechanism, and the hydraulic action is said to cushion the arm lowering. The operating mechanism is of tamperproof construction and is entirely enclosed and protected in a water-tight housing box which is installed at a convenient height of four or five ft. The main housing and arm plates are of cast iron and the mechanism is constructed with carburized nickel steel gear shafts and needle-type bearings throughout.

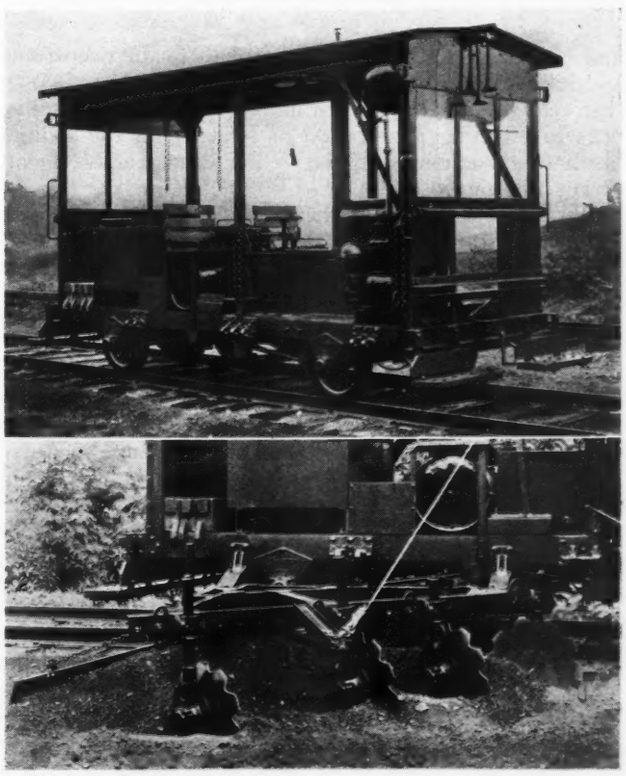
Provision has been made for handling up to 14 separate electrical circuits, more than enough for normal signal and interlocking requirements. Only $\frac{1}{200}$ watt is required to hold the gate in the raised position, and the gate automatically lowers when the power is off. All lubricating can be done from the outside without removing bolts or plates. The motor can be removed without disconnecting gears, couplers, etc., and coils are mounted on a detachable plate, easily accessible for inspection. The complete mechanism and arm plates are reversible and may be installed on the front or rear of the post to suit requirements. The gate can also be equipped with such optional features as a swinging arm, power lowering, etc.

Improved Fairmont Ballast Drainage Unit

Fairmont Railway Motors, Inc., Fairmont, Minn., has made a number of important improvements in its M23, Series E ballast drainage power unit which is used for discing the ballast, re-establishing the sod line and reshaping the ballast shoulder.

Equipped with a Waukesha propelling engine which delivers 75 hp. at 1,600 r. p. m. (the governed speed), the unit has a directional gear on the drive axle which permits the five transmission speeds to be used in either direction. It has a needle-bearing double universal joint propeller shaft and air brakes and a worm and gear parking brake are standard equipment. The working tools are raised and lowered by means of two large air cylinders, a two-stage compressor furnishing the air, and both the propelling engine and the compressor are equipped with oil bath type air cleaners. The controls of the unit are simple, are conveniently accessible and are so arranged that either of the operators can stop the machine quickly. The device is said to be ruggedly constructed for long life, with a frame of heavy longitudinal steel channels and steel cross members and uprights. It is equipped with safety glass installed in the enclosed ends and with foot boards and grab irons at the front and rear.

The discing attachments for this unit will dress and



Above—The M23, Series E, Ballast Drainage Car. Below—Close Up of Discs and Baffle Reshaping the Ballast Shoulder

improve the drainage in all types of ballast. The discs are fully adjustable with an inner support joint of the "knuckle" type to compensate for shoulder variations. The inner and rear baffles are also adjustable to keep ballast off the ties and in the correct position.

Bysulox Weed Killer

General Chemical Company, New York, has developed a new weed killer, known as Bysulox, for large-scale spray application on the railroads by a simplified method which reduces work-train time and the amount of revenue equipment required.

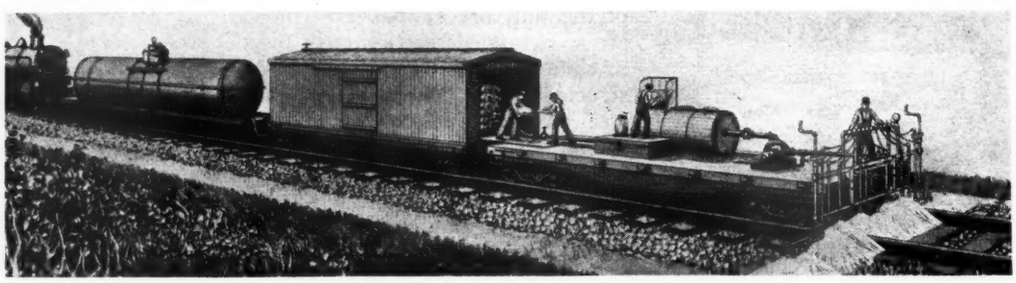
Bysulox is a dry, flake form chemical combination quickly soluble in water. It contains not less than 85 per cent sodium bisulfate processed with an organic surface active agent and 3½ per cent oxides of arsenic. Although Bysulox contains only 2½ per cent to 5 per cent as much arsenic as standard sodium arsenite weed killers, it is said to be very effective because it acts by penetrating the foliage and then is translocated downward within the plant structure to the deep roots to complete its destructive action.

In theory, the weed killing action of Bysulox consists of two phases: (1) destructive penetration of the foliage and (2) translocation within the plant to the deep roots and killing of the root systems. It has long been known that acid solutions are much more effective than alkaline ones in effecting penetration of foliage and the sodium bisulfate, its action improved by the surface active agent, serves this purpose.

Bysulox operates by penetrating and breaking down weed tissues and cells and then, by a process of translocation, travels downward within the inner circulatory system of weeds to attack the roots. To obtain translocation, the foliage tissues must be penetrated. The translocating action of Bysulox increases with a deficiency of soil moisture (due to the fact that deep roots have a sub-atmospheric pressure or vacuum during dry periods). A test of water deficit in plant tissues can be made by cutting weed stems and dipping them in a dye solution, such as a solution of Eosin. The uptake of dye in the plant stem is a reliable indication of the water deficit. Under these conditions, when the living cells of the leaves have been killed and rendered permeable, the sap is freed from the osmotic forces and is drawn downward into the roots, carrying the destructive constituent of the spray solution with it. This is known as the process of translocation. Within the roots the arsenic content of Bysulox slowly diffuses laterally, killing the root tissues. Finally, with the foliage, connecting stems and roots killed, plant life ceases and the entire plant dies if the roots have been killed to such a depth that new sprouts are unable to push to the surface. Because young weeds have not fully developed their circulatory systems, Bysulox should not be applied until they have gained early maturity, which is usually indicated by the bloom or tassel stage. Bysulox is most effective in dry weather. Applications must not immediately follow rainfall but should be applied when the soil has dried out and lost excess moisture. However, rainfall after application is not unfavorable.

Bysulox is applied by a spray train equipped with three cars, a non-revenue water car or water tender, an open-end box car to carry the chemical, and a spray car, in the order named. The spray car is a flat car equipped with a 750 to 900-gal. wood mixing tank, a spray pump, a pump drive, a pressure regulator and spray head. The mixing tank is connected to the water car by a 4-in. water inlet pipe having a 4-in. water meter and a 4-in. float valve at water level. The intake and level in the tank are regulated by the float valve, and the meter in the intake line records the volume of water used.

Power for the pump may be taken from the car axle by a chain drive to a clutch and a V-belt drive from the clutch to the pump. A centrifugal, open impellor pump with a 2½-in. suction and 2-in. discharge line is used. Operating at a speed of 700-1,450 r. p. m., the pump will deliver 80-180 gal. per min. at a pressure head of 20-60 lb. A by-pass return line extends to the bottom of the mixing tank and twelve 3/16-in. holes provide agitation for mixing. The return line valve serves the double purpose of controlling the extent of agitation and regulating the pressure at the spray head, which is indicated by a meter mounted on the spray manifold.



The Spray Train Organization for Applying Bysulox

The spray head consists of 11 hollow cone, non-clogging, ramp-bottom type nozzles, each discharging 7 gal. per min. at 20 lb. pressure or 12 gal. per min. at 60 lb. pressure, with a total output of spray solution up to 500 gal. per mile at 18 m. p. h. The entire spray head and manifold is demountable in two sections and is held in place with lag screws.

Bysulox is delivered in 100-lb. water-proof bags or 100-lb. non-metal drums. These are loaded in the open-end box car and are dumped into the tank as required, while the train is in motion. Before the spray train starts operation, an initial charge is added to the mixing tank in the proportion of 100-125 lb. to each 100 gal. of water. Then, as spraying proceeds, further batches of 100-125 lb. of Bysulox are dumped into the tank through a screened feed hopper for each additional 100 gal. of water added, as shown by the water meter. Three men are required to open packages, feed the hopper and dispose of empty packages. The speed of the train automatically regulates the amount of solution delivered to the spray head.

A gasoline engine may be substituted for the car axle pump drive if it more conveniently suits available equipment.

With this method, using 8,000 to 16,000 gal. of water and applying an average of 400 gal. per mile, the train can operate continuously between water tower stops. Re-

filling at water tower stops requires only enough time to fill the tank.

Among the advantages that the Bysulox method of railroad weed control offers are: (1) reduced work-train time, cost and equipment, (2) the elimination of bulk tank car mixing, and (3) requires only non-revenue equipment.

Moto Sweepers

A new Moto Sweeper, known as the Detroit Model, that is adapted for mechanized sweeping of small and medium size shops, has been placed on the market by the Industrial Moto Sweeper Division of the Moto-Mower Co., Detroit, Mich., as a companion model to the larger mechanical sweepers manufactured by this company for large shops and industrial plants.

The Detroit Model is essentially a mechanically-driven enclosed sweeper with a self-contained dirt box which sweeps a swath 27 in. wide with very little dust disturbance. The unit is propelled by hand by means of a ¾-in. steel tubular handle. It weighs 80 lb. and has an over-all width and over-all length of 34½ in. It has two 10-in. rubber-tired drive wheels and a front caster wheel 3½ in. in diameter. The brush wheel is 11 in. in diameter and 27 in. long and is driven from the drive wheels by an encolsed drive and pinion gears.

The Detroit Model Moto Sweeper

It is said that the unit can be pushed as easily as a broom, that one man can clean approximately 16,000 sq. ft. of floor surface in an hour, and that a better job can be done with this sweeper than with a broom and with less dust.

The larger models of Moto Sweepers are powered with one-cylinder gasoline engines of 2 and 5 hp., and can be adapted for both inside and outside sweeping of snow and dirt. Dustless sweeping can be provided by adding a sprinkling attachment.

Heavy Post-War Federal Spending Unnecessary

"At the end of the [1917-18] war, there was some concern over the problem of demobilization and reabsorption of labor. It was feared by many that the war would be followed by a sharp reduction in prices accompanied by a serious business depression. The government had made no preparation for providing buffer employment on public works; indeed, there was little recognition of the possible role of public works in supplementing private business activity. It was assumed, as a matter of course, that primary responsibility for the reabsorption of the returning soldiers and war workers in normal peacetime occupations would rest with private enterprise.

"Government spending played little part in promoting recovery. The role of the government in mitigating the difficulties of the transition period was confined to: (1) giving a dismissal payment to all returning soldiers, amounting to about 250 million dollars; (2) stabilizing the price of wheat for the 1918 and 1919 crop seasons; and (3) extending credits to foreign countries for relief purposes, the amounts aggregating in the year 1919 about 1.75 billion dollars. Government expenditures were rapidly declining during the very months when recovery occurred."—From "Collapse or Boom at the End of the War", a Brookings Institution Pamphlet by H. G. Moulton and Karl Schlotterbeck.

Diesel Deadheads Hearings Continue

THE demands of the locomotive firemen and engineers for extra men on Diesel electric locomotives and increases in pay would destroy the inherent economy of Diesel locomotives, would jeopardize a $142,000,000 investment in equipment and would kill the industry which has invested in plants and facilities for the manufacture of the locomotives, according to Sydney A. Alderman, chairman of the Council committee of the carriers and general solicitor of the Southern in the carriers opening statement in the hearing on the demand of the Brotherhood of Locomotive Engineers for an assistant engineer on each unit of Diesel locomotives and pay based upon horsepower which an emergency board is conducting at Chicago. The engineers opened their case on March 15 after the firemen had completed their case on March 12, the hearings having been started on March 1.

The wage increases and additional men demanded by the Brotherhood of Locomotive Engineers in the West and Southwest territories would cost the railroads $7,185,000 a year, while the wage increases and additional men demanded by the Brotherhood of Locomotive Firemen and Enginemen in three territories would bring the total to $16,261,996, on the basis of the present number of locomotives. The figures, he said, do not include other items of cost.

The engineers are asking for an assistant engineer on each unit of Diesel electric locomotives and that compensation for engineers on Diesels be based on horsepower rather than upon weight on driver. Unlike the firemen's requests, the wage demands of the engineers do not apply to men on steam or electric locomotives. The engineers have asked that the brake horsepower of the Diesel engine, determined from a pony brake test at the manufacturer's plant, be used as a basis for determining compensation. Counsel for the union in his opening statement contended that the productivity of the Diesel electric locomotive should be measured in the equivalent of the productivity of the steam locomotives. He contended that the Diesel electric locomotive is a new locomotive and that, therefore, a new base rate of pay must be established for the Diesel. The railroads, he said, without negotiation or agreement, have set up the weight-on-driver basis. The union, therefore, is not after new pay, but is seeking a new basis, that should have been placed in effect when the Diesel was placed in service. He cited contracts made on the Southern Pacific in 1935 in support of his contention.

Mr. Alderman contended that if Diesel locomotives were returned to the plant of the manufacturer so that the Diesel engine could be taken out and tested in accordance with the Union's demands, it would not only play havoc with the locomotive supply but that the test would cause the engine to break down. Under the engineer's demand, he said, the pony brake test would be made at the manufacturers plant at rated horsepower and while running at maximum r.p.m. and output under the severest conditions for three hours. The horsepower used as a basis for compensation would be the rated horsepower plus 50 per cent of the difference between the maximum horsepower developed under the test and the rated horsepower.

N. Y. Central Announces Its Research Program

In its preliminary annual report to stockholders, the New York Central last week revealed that it has embarked upon a comprehensive inquiry into the problems which post-war conditions are likely to produce. The announcement reads as follows:

"Extensive changes in transportation may be looked for after the war, with intensified competition from other forms of transportation. Primarily to prepare to meet these problems, but also to accelerate the company's policy of constant improvement in plant and methods, a research council has been organized. This is composed of eight of the company's officers whose individual qualifications and official responsibilities particularly fit them for the assignment. Under the direction of the Council, a number of committees have started work, investigating subjects such as competition from highways, waterways, pipe lines and air lines; and ways to improve the company's plant and methods respecting freight and passenger service, roadway and equipment, accounting and statistics, personnel, etc.

"These committees are being provided with as much full-time and part-time help as can be made available, consistent with the paramount need for keeping war-time operation of the railroad at maximum efficiency. The Association of American Railroads is pursuing a similar program of investigation, directed at industry-wide problems, and the company is actively cooperating in this effort."

Hearings Continue in Non-Ops Wage Case

(*Continued from page 548*)

case on March 16 with witnesses testifying in support of the closed shop. They revealed that the railway unions were forced to seek a closed shop because the Administration, by fostering the closed shop, has enabled the Committee on Industrial Organization to gain advantages in the railroad field over the railway unions and because the members of railway unions have insisted upon enjoying the same privileges as the C. I. O.

Witnesses for the non-operating employees also presented data to show that employee effort and compensation should bear a relationship to revenue and output. The testimony supporting this philosophy was opposed by counsel for the carriers in cross-examination because it did not give proper weight to capital improvements and technological advancement.

"While 1930 shows a substantial decline from 1929 in the number of employees," Eli L. Oliver, an economist, testified for the employees, "there is very little decline in the number of tons per hours of service. In 1933 the revenue per ton-mile per hour of service is higher than for any year while the freight ton-miles per number of employees in 1933 were less than that in 1930 or 1939. From 1933 on, the number of revenue freight ton-miles per hour of employees service rose steadily, with the exception of 1938 when it was still higher than any year prior to 1936.

The low point in revenue freight ton-miles per dollar of compensation was reached in 1931 and in 1932 the freight ton-miles per dollar of compensation was higher than in any preceding year. With fluctuations, the figure rises to the high point in 1932 when the freight ton-miles per dollar of compensation was 90.7 per cent above 1921, 46.3 per cent above 1925 and 40.9 per cent above 1930.

Railroads-in-War News

McCarthy Fears Car Shortage This Year

Slower car movement eats up savings resulting from ODT Orders 1 and 18

"The car supply is not comfortable and the car movement is not at all reassuring," Henry F. McCarthy, director of the Division of Traffic Movement of the Office of Defense Transportation, declared in an address March 18 at the Boston, Mass., meeting of the New England Shippers Advisory Board.

The time required for transit of railroad freight shipments has increased as much as 50 per cent in some cases, he said, as compared with last summer, and the additional time required for turn-around of freight cars has had the effect of a 4.2 per cent decrease in box car supply and a 6.8 per cent decrease in the open-top car supply, as compared with last year. Gains in the net car supply resulting from heavier loading and other conservation measures have been offset by this development, he pointed out, and further steps, voluntary or directed, will be necessary "to make the grade during the remainder of the war months."

Discussing the effect of the ODT's General Orders No. 1 and No. 18, Mr. McCarthy observed that the apparent saving of cars resulting from these orders—estimated at 65,000 box cars weekly through the operation of Order No. 1, for example—does not take into account other factors developing out of compliance with the order which have an opposite effect. Among such factors he mentioned empty movement of cars, cars made idle at a point removed from pressing needs for cars, car-days absorbed in filling out to the required minimum weights, additional car-days required for unloading more tightly packed lading, changes in destinations and other practices requiring increased handling during a period of dwindling manpower supply.

General Order No. 1, the speaker asserted, "probably released enough cars to save the day last fall," though it did not add 65,000 cars to the box car supply. "It certainly cannot be relied upon to carry us through 1943."

Turning to General Order No. 18, Mr. McCarthy said he had found there is an undue amount of optimism about its results. "In its conception the order was designed to secure maximum utilization of motive power," he declared. "The car savings were considered a desirable by-product. The reason I make that emphatic statement is that we have encountered opposition to certain changes which are under consideration upon the ground that 'no cars will be saved.' . . . With full loading of cars, it was our thought that the expected large increase in ton-miles (which did occur) could be handled without requiring an equivalent increase in the number of locomotives required."

Mr. McCarthy conceded that the increased carload required by this ODT order involves some sacrifice of car efficiency. "There is ample testimony that it takes longer to load and unload cars that are loaded to the roof, that the extension of the stop-off principle uses up more car-days and increases car-miles, and that increased switching results from the stop-off and consolidation privileges in ODT 18." Immediately after the order became effective, he added, there followed a period of comfortable car supply conditions, which resulted in a tendency to relaxation on the part of some persons concerned in getting the greatest benefit from it. "That easy car situation no longer exists," he warned, and "there are competent men who are willing to compel" necessary activity to get maximum results from the order, if such a let-down persists.

"Measures thus far taken are inadequate to enable the unexpanding plant of the railroads to handle the burden of traffic that will come with an intensified war effort," the speaker declared. "In 1942 the average loaded car-mile haul increased approximately 16 per cent. More road time per trip, plus more interchanges, plus more repairs, is the consequence. . . . The effect is a direct depletion of our car supply.

"I cannot assure you that there is any slackening in this increase," he added, giving figures to show that the ton-miles increase in the first two months of 1943 was about the same, compared with 1942, as the 1942 increase in the same period was as compared with 1941.

Other factors contributing to the slowing down in transit time mentioned by Mr. McCarthy included the development of new major originators or receivers of freight which the railroads were not built to accommodate—resulting sometimes in a "dramatic" slowing down of car movement—and the "static bank" of over 20,000 cars remaining at the ports for an average of about 10 days to serve as a reservoir for ship loading. This means, he pointed out, that "an immense number of car-days are sacrificed in order to avoid loss of precious ship-days. This bank of cars will increase as our fleet increases, and our export activity grows with the intensification of our war effort."

Pointing out that civilian industrial traffic men route about 87 per cent of carload

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Sees Bigger Demand For Reefer Service

ODT thinks rationing and shift from trucks will intensify shortages

Record demands on the refrigerator car supply have necessitated the more extensive use of ventilated box cars for the transportation of citrus fruits by Florida railroads, according to a March 11 announcement from W. C. Kendall, chairman of the Car Service Division of the Association of American Railroads. The following day the Office of Defense Transportation issued a lengthy review of the refrigerator-car situation, leading off its press release with a prediction that expansion of the market for fresh fruits and vegetables as a result of rationing of canned foods "will increase demands for railroad refrigerator-car service and intensify shortages in the supply of refrigerator cars."

Meanwhile the already-increased need for refrigerator cars, Mr. Kendall said, had been brought about "by heavier movements of perishables and canned goods for the fighting forces and lend-lease allies, and by diversion to the railroads of traffic which in peacetime moved in coastwise ships." Shippers are being asked to accept the ventilated box cars "only in those cases where the destination areas will not subject the shipments to freezing," he pointed out, adding that the arrangement is only temporary and will end as soon as conditions permit.

In order to maintain an adequate supply of the ventilated box cars in the Florida citrus-producing area, the Car Service Division recently issued a special car order prohibiting the use of such cars by Northern roads and requiring their immediate return to roads serving Florida. These Car Service Division arrangements, though more elaborately planned, are similar to those in effect last year.

Aside from the increased demand for refrigerator-car service expected to result from the rationing program, the ODT also anticipates "the shifting of a growing volume of perishable shipments from truck to rail transport." The present season's shipments of Florida citrus by truck are down 40 per cent, "adding approximately 6,000 carloads to the volume of rail shipments of oranges and grapefruit."

"The refrigerator-car supply situation, now tight in several areas, is expected to become easier during April and May, when there is a between-season lull in shipments of perishables," the ODT statement continued. "ODT officials anticipate renewed

tightening in June and fear development of serious shortages in later months. They predict that stringencies will become particularly acute in October, when, in addition to other seasonal demands, there is a heavy movement out of California of grapes, melons, peaches, pears, and other fruits."

The Red River Valley region of the Dakotas and Minnesota was listed as the area of the "most serious current shortage." There "it has been difficult to supply a sufficient number of refrigerator cars for movement of seed potatoes to Southern and Southeastern states for planting this month." Orders issued by the Interstate Commerce Commission's refrigerator car agent to relieve this situation are mentioned, including one issued March 6 to discontinue until further notice "all beer shipments in refrigerator cars, except shipments for distances of over 200 miles in cars which otherwise would be returning empty to their home territory." Beer shipments for the Army, Navy, Marine Corps, and Coast Guard were exempted. Another order gave preference to movement of seed potatoes over table stock in refrigerator cars, from Maine as well as from the Red River Valley.

Another, though "less serious," shortage of refrigerator cars "is affecting the movement of apples from the Wenatchee Valley"; while a "severe shortage," earlier this winter, of cars for moving Maine potatoes "has been relieved, though the situation there is still tight."

The ODT release went on to tell how the number of refrigerator cars dropped from about 173,000 in 1928 to 143,000 as of January 1, 1942; and while requests for allocation of materials for rebuilding or new construction of refrigerator cars "are under consideration, ODT officials said there was little prospect in any case that a sufficient number of additional cars could be supplied in time to avert completely the stringencies anticipated for next summer and fall."

Then comes a review of arrangements which have been made to increase the utilization of the existing refrigerator-car supply. These include the "refrigerator-car pool" administered by R. B. Hoffman in his dual role of I.C.C. agent and manager of the Car Service Division's Refrigerator Car Section. This has eliminated "a large amount of cross-hauling"; while "various steps have been taken by ODT and the I.C.C." to encourage the loading of non-perishable traffic into refrigerator cars returning empty to the West Coast area. Because the use of refrigerator cars for general freight "involves certain disadvantages," this effort has not been highly successful.

When all measures are lined up and appraised, the "most conspicuous savings in the use of refrigerator cars," the ODT release said, "have been those accomplished as a result of the heavier loading of perishable freight prescribed by special directions issued under ODT's General Order No. 18." The heavier loadings of January over January, 1942, are credited with saving 2,164 cars in the movement of potatoes, 577 cars in the movement of onions, and 2,300 cars in the movement of Florida and Texas oranges and grapefruit. Similarly the requirement that California citrus shipments be loaded to 567 boxes per car is expected to result in "a saving approximately 13,725 refrigerator cars" during the period from March 1 to October 1, this year.

Asks That Big Shippers Stop Tying Up Pullman Space

Henry F. McCarthy, director of the Office of Defense Transportation's Division of Traffic Movement, has written to the National Association of Shippers Advisory Boards and the National Industrial Traffic League a joint letter asking those organizations to see what can be done to persuade traffic managers and officers of corporations that they should not tie up Pullman space with the idea of meeting "conjectural" demands.

Mr. McCarthy said he had been disappointed to discover instances where traffic managers and corporation officers had made advance purchases of railroad tickets and Pullman accommodations "on a sizable scale" to protect "conjectural demands" with the result that frequently the advance purchases for which no later need developed were surrendered upon the day of departure just enough in advance to secure a full refund. He added that frequently such space remained unused although previous requests for accommodations had been refused.

"Because of freight traffic pressure," Mr. McCarthy went on, "the railroads are not in a position to cope with such demands, and traffic managers are able to hoard transportation not only to protect real demands but also "conjectural demands."

Would Prevent Storage in Cars Awaiting Shipping Documents

Interstate Commerce Commissioner J. Monroe Johnson has asked the Association of American Railroads to take necessary steps to prevent shippers from indulging in the practice of loading cars before they are in possession of all necessary papers and permits required for actual shipment. The commissioner's request was called to the attention of railroad transportation officers in a March 15 circular issued by W. C. Kendall, chairman of the A. A. R. Car Service Division.

Mr. Kendall said that the field forces of his Division had been instructed to "handle vigorously for correction" any such cases; for the matter "is a very important subject and should be forcefully followed on each railroad." With the circular he sent along a copy of a letter which Commissioner Johnson had written to a Massachusetts industry making shipments to the Treasury Department for export. The commissioner had been advised that the industry was holding cars placed for loading from five to nine days; and that it was doing the necessary paper work in connection with reports to the Treasury and applications for ODT permits after the cars were placed.

"There seems to be no reason why the information is not mailed to the Treasury Department and permits received before the car is placed or loaded, except that you have no storage space," Mr. Johnson said. "This means one thing only, that you are using railroad cars for storage. When this war loomed on the horizon, it was made plain and certain that railroad cars would be used in this war for transportation and not for storage, because of the disaster to railroad transportation in the last war. It is going to be unfortunate if you don't secure storage space, for steps will be taken at once that this storage of your goods in railroad cars be stopped."

Air Express Sets Record in 1942

Air express transported by the nation's commercial air lines in 1942 broke all records for number of shipments, weight and revenue, according to figures just released by the air express division of the Railway Express Agency. The weight of shipments increased 93 per cent over 1941, the number of shipments was up 7.5 per cent over the previous year and gross revenues exceeded nine million dollars, or 111 per cent better than in 1941. The average weight per shipment increased from 8.6 lb. in 1941 to 15.4 lb. in 1942 and the average charge per shipment was $6.43 compared with $3.27 for the previous year.

McCarthy Fears Car Shortage This Year

(*Continued from page 591*)

traffic, the speaker declared this means that seven-eighths of the responsibility for further improvement in car utilization rests with these men, with every shipper and railroad man. The alternatives to their resourcefulness and initiative and leadership, he said, "are harsh—priorities, preferences, embargoes."

"In our examination of the absorption of car-days which results from a slowing down in the movement," continued Mr. McCarthy, it developed that, while the tendency was general, "the degree of slowdown depends to a great degree upon the railroads and the routes selected. . . . In our examination of transit times, we have discovered that the minute a car touches certain railroads, it slows down and makes slower time than a shipment between the same points routed via other carriers. Likewise we discover that certain combinations of carriers are not as efficient as others between given points." Shippers, he declared, should examine their service performance with a view to finding the routes of least resistance so that the whole body of shipments will be expedited.

Discussing plans to reduce cross-hauling to the extent that it can be accomplished without affecting full production and full consumption of essential goods, the speaker urged industrial traffic men to obtain serious consideration of this question by their companies and industries so that the necessary savings could be obtained without resorting to drastic orders.

"We have encountered the objection that no action is necessary," he remarked, "because there is a present car surplus or that the railroads still are soliciting business. Admittedly, there are certain railroads that

can handle more business, . . . and generally the under-used railroad can provide as good or even better service than one straining under a near-capacity load.

"In this field of conservation and elimination of excess hauling, I realize that there are fundamental objections to a reshuffling of the American marketing economy. The point that I wish to make is that the gains—the accumulation of a reserve carrying capacity on our railroads—are well worth a temporary re-definition of marketing practices. We hope that this work can be done by industry itself."

Fatal Crossing Accidents Not Reduced in 1942

Because anything that interferes with maintaining railroad operations at the highest possible peak of efficiency makes it just that much harder for them to discharge their wartime responsibilities, motorists should exercise even greater efforts to avoid grade-crossing accidents, Director Joseph B. Eastman of the Office of Defense Transportation pointed out in a statement issued March 15 in commendation of the National Safety Council's campaign to "Save Manpower for Warpower."

"While curtailed use of automobiles resulted in a 30 per cent reduction in fatalities in motor vehicle accidents as a whole, during 1942," said Mr. Eastman, "there were actually more persons killed at grade crossings last year than in 1941. Final reports are not yet available, but it is estimated that nearly 2,000 persons were killed in such accidents, and over 4,600 injured." Moreover, he pointed out, "they often cause the destruction or damage of railroad material and equipment that is now largely irreplaceable. And they always cause train delays. The extent of such delays is graphically illustrated by the calculation that grade-crossing accidents result, every day of the year, in delaying 38 trains for an average of 22 hours."

The increase in grade-crossing fatalities in the face of a decrease in automobile travel was the result of operating a "great many more trains" to handle the wartime freight and troop movements, the ODT director said. And as automobile travel continues to decline train movements can be expected to increase still more, he added. For that reason, he failed to draw much encouragement from the fact that grade-crossing fatalities did begin to show a downward trend in the latter months of 1942.

Downey Defends Railroaders on "Feather-Bedding" Charges

Recent newspaper and magazine articles dealing with "feather bed" rules on the railroads were assailed in the Senate this week by Senator Downey, Democrat of California, who appraised as "almost wholly false" any implication that railroad employees "are working very short hours, and that, due to certain arbitrary rules, there has been a large wastage of railroad workers." Mr. Downey spoke thus in one part of his lengthy discussion of his proposal (noted elsewhere herein) to give employees of transportation agencies a deferred status under Selective Service.

He referred specifically to the article on "feather bedding" which appeared in March issue of Reader's Digest, calling it "a most unfair and misleading article." He did concede, however, that "in the United States there are approximately 500 railroad engineers and firemen who have what we call a fast, blue chip run"; but he contended that the Reader's Digest article discussed that group "as though its members worked under conditions typical of those of hundreds of thousands of other railroad workers." Moreover, Mr. Downey is told that the men on the fast runs are engaged in work "most severe and onerous," and he has heard it argued that such work is "more burdensome" and "more particular," than that of air transport pilots who are not allowed to work more than 30 hours a week.

In undertaking to refute the charge that railroad employees generally are not working long hours, Mr. Downey presented data he had obtained from the Southern Pacific. He interpreted the report as showing that "almost all of the workers worked in excess of 50 hours a week and that some worked as high as 59 and 67 hours a week." He also presented the recent Office of Defense Transportation press release which reported that "most of the nation's railroad workers average over 50 hours weekly."

With respect to working rules, Mr. Downey calculated that "there are about 5,000 railroad workers whose time of working is being criticized because there is some special rule of the railroad workers which limits how they may work." He has "no idea" about the justice of this argument, but he insisted that "whatever the truth is, its effect upon a million and a half railroad workers and the time they work is negligible." He added: "Any magazine, any newspaper, any speaker who takes isolated statements and then attempts to prove from such statements the truth about the whole group is committing, in my opinion, a treasonable offense . . . in the broad meaning of the word."

Troop Movement Three Times Those of 1942

The nation's railroads carried more than three times as many troops in organized movements in the first two months of 1943 as they did in the corresponding period of 1942, according to M. J. Gormley, executive assistant of the Association of American Railroads, in an address before the Pacific Coast Transportation Advisory Board at San Francisco, Calif., on March 19. Troop movements, Mr. Gormley further revealed, have been stepped up until now there are approximately 1,750,000 men traveling monthly on the railroads in organized parties. During the first 12 months following Pearl Harbor, he said, the railroads transported more than 11 million members of the armed forces, not including those traveling on furlough. This number, he stated, was more than three times as many troops as were carried in similar movements during the first year that the United States was in the first World War, and more men than were moved in the last war from the time America entered the conflict until the armistice.

The movement of troops is only part of the gigantic transportation job that the railroads are doing in this war, he continued. As other examples of the size and complexity of the job, he pointed to the flow of oil to the East in railroad tank cars, and the heavy movement of freight to the ports for export shipment.

At the present time, he said, between 2,500 and 3,000 cars, or more than the daily average at the peak of the last war, are being unloaded each day at the ports. "The job," he said, "is being done so smoothly and with so little difficulty that it all escapes public notice, and there is no serious congestion at the ports. There are 20,000 loads of export freight now being held at the ports awaiting ships, and the number is probably a little in excess of what it ought to be at some of the ports in the Western territory. However, this number of cars is only a seven-day bank, and the situation cannot properly be regarded as alarming in any sense."

"We should not overlook the fact that the fine record to date has also been due partly to the excellent spirit of cooperation that has existed between and among the carriers themselves. This spirit has manifested itself in many ways. Railroads, for example, have loaned or leased locomotives to other railroads which were seriously in need of motive power to move war freight. They have helped one another by furnishing material, which one railroad would not require for some time, to another railroad which needed it and was not able to obtain it elsewhere."

Mr. Gormley predicted that railroad freight traffic this year will be about 10 per cent more than it was in record-breaking 1942, and railroad passenger business will go up approximately 25 per cent. "If these predictions are fulfilled," he commented, "the railroads will be handling at least 110 per cent more freight traffic and nearly 200 per cent more passenger traffic than in 1939, and 75 per cent more freight business and 57 per cent more passenger traffic than in 1918."

The ability of the railroads to carry this greatly increased load, he concluded, depends upon the amount of equipment that will be available to handle the traffic, and the amount of work that that equipment can be made to turn out.

Materials and Prices

Following is a digest of orders and notices of interest to railroads, issued by the War Production Board and the Office of Price Administration since March 13.

Purchase Orders — Amendments of Priorities Regulation No. 3, announced March 9, providing for oral application of preference ratings when orders are placed by telephone, require that only a written description of the materials purchased be sent by the buyer to the supplier within 15 days following the order. A preference rating assigned in the course of a telephone order may now be extended immediately by the supplier, if necessary to acquire the material to be delivered. It may not, however, be

extended to replenish inventory until receipt of the written confirmation. Formerly, it was necessary for the buyer to send to the supplier a detailed purchase order within 7 days of placing his telephone order and the supplier was not allowed in any circumstances to extend the rating until receipt of this written order. The regulation, as amended, also eliminates the provision which previously prohibited any further deliveries to a person who had applied a rating in the course of a telephone order, but who failed to follow with a written confirmation within the specified period. The regulation also makes it clear that maintenance, repair and operating supplies are to be obtained after March 31 as provided by Controlled Materials Plan Regulation No. 5.

Prices

Coal—OPA Order 1905, issued March 15, increased maximum prices on bituminous coal in District No. 5 (Michigan) by 40 cents a ton for all sizes, and those in District No. 15 (Kansas, Texas, Missouri and parts of Oklahoma) by 15 cents a ton, to allow for the added costs of the new six-day work week. Bituminous coal distributors handling lake or tidewater shipments must charge service fees based on those they charged in October, 1941, the base period.

Gray iron castings—Amendment No. 3 to Price Regulation No. 244, effective March 13, together with supplements issued March 9, establishes conditions under which sellers of gray iron castings may apply for adjustment of their maximum prices. A seller must be prepared to show that his maximum prices are below production costs or are inadequate to justify continued production; that the castings are necessary to the war effort; that the applicant has special knowledge or experience in the production of the castings; that no other foundry equipped to produce the castings is located within reasonable distance of the purchaser; that there is a general shortage in the type of facility possessed by the applicant for production of the castings; and that the buyer would not be able to obtain the castings from another satisfactory source except at prices higher than those requested by the applicant. Applications are to be filed on forms named in the amendment and in accordance with procedural regulations described in it. They can be obtained at OPA field offices or from Washington.

Copper scrap—Maximum Price Regulation No. 20, effective March 22, replacing Revised Price Schedule No. 20 as amended, establishes specific grades and prices for all copper scrap and copper alloy scrap, including 16 new grades. The so-called normal differential clause of the previous schedule, which had provided that any grade for which no specific cents-per-lb. price was established should be sold at its normal differential from other grades, is discontinued. Any grades that do not meet any of the specifications for listed grades other than refinery brass are now required to be sold as refinery brass. The regulation allows a quantity premium of 75 cents per lb. for a shipment of 60,000 lb. of one group number, as heretofore, but adds a quantity premium of 50 cents per lb. for a minimum of 20,000 lb. of one other group number when shipped together in one car. The general level of prices is not affected by the regulation. The new definition of copper alloy scrap exclude copper-bearing material from price control. The table in which prices are established for a total of 44 grades of scrap has been reorganized so that it may be consulted readily and understood more easily. Prohibited practices are described in detail. Other changes include the elimination of the previously required reduction in price for No. 2 copper wire and mixed heavy copper and for light copper when bought by inspection instead of by analysis. Revision of the formula and method for pricing high-lead bronze and changed specifications for both high-lead bronze and high-lead bronze borings reduce the price one-half cent per lb. A deduction is made for removing the covering from lead-covered copper wire and cable similar to that applicable to insulated copper. Simultaneously with the issuance of Maximum Price Regulation No. 20, Amendment No. 5 to Revised Price Schedule No. 12 modifies the definition of brass mill scrap to provide that material that is unsuitable for brass mill use is not to be considered brass mill scrap. This has the effect of removing such material from Revised Price Schedule No. 12 and placing it automatically under control of Maximum Price Regulation No. 20.

Zinc scrap—Maximum Price Regulation No. 3, effective March 18, replacing Revised Price Schedule No. 3 originally issued March 31, 1941, requires secondary slab zinc that fails to meet the specifications for prime western grade to be sold below the maximum price for that grade. Less-than-carload lots of secondary slab zinc are put under a new pricing formula which equalizes prices for carload and less-than-carload lots except for graduated quantity premiums. The old schedule resulted in selling less-than-carload lots f.o.b. point of shipment, while carloads were sold delivered. The new formula makes the price for carload lots and for less-than-carload lots identical for all producers, irrespective of their location, except for quantity premiums. The regulation eliminates record-keeping provisions except in transactions involving industrial consumers; simplifies the provision governing the deduction of the weight of foreign materials by permitting it to be done according to the established practice of the trade; regulates toll or conversion charges; provides that if there are several carload rates between the same two points, the lowest rate must be used in calculating charges; and provides that when a buyer is willing to accept his purchase in a single shipment it shall not be broken up in order to obtain higher quantity premiums. Toll or conversion charges may not now exceed the difference between the allowable maximum price of the scrap zinc material and that of the resulting product.

Railroad materials—Letters to railroads authorizing AA-1 priorities for maintenance materials and containing special instructions governing applications for materials for maintenance and repair, additions and betterments and the purchase of rubber tires, as issued by the Transportation Equipment Division, were as follows:

Holders of Order P-88

This is your authority to apply AA-1 preference rating to deliveries during the Second Quarter of 1943 of quantities of material not exceeding 70 per cent of quantities stated as necessary for use in Column 8 of Form PD-351 as submitted for First Quarter 1943 requirements. Quantities shown in Column 8 of any supplement submitted after the regular First Quarter 1943 PD-351 are not to be included in determining Second Quarter deliveries to which the AA-1 rating may be applied.

However, due to the necessity of taking care of such special requirements as fabricated materials, rail and rail fastenings, the 70 per cent may be determined with reference to all quantities authorized by items during this quarter as indicated in Column 10 of regular PD-351 and all supplemental applications approved for delivery during the First Quarter 1943. This alternate method of determining quantities *must* be used for the dollar value fabricated authorization and *may* be used for any other item. Also, neither method needs to be used to the exclusion of the other, except for fabricated parts authorization, but the method of arriving at allowable quantities may be alternated from item to item if necessary.

If possible, no more than four-sevenths of any allowable quantity, as determined by processes given above, is to be requested for delivery in any one month. When quantitative authorizations for the Second Quarter 1943 are received on Form PD-351 or other prescribed form, the quantities and ratings authorized therein will supersede and cancel this authorization insofar as quantities allowed are less than those obtained by methods described herein or rating is lower than AA-1. (Signed by Curtis E. Calder, Director General for Operations.)

Holders of Order P-88

In order to benefit by direct allotments of controlled materials during the Second Quarter of this year, the following procedure is outlined with reference to projects:

(1) For projects for which priority ratings have been issued or may be issued prior to February 1: A review should be made of the status of outstanding material orders and CMP-4C forms prepared and submitted for each project to cover the controlled materials which will not be shipped by April 1.

(2) For projects for which priority ratings will be issued after February 1: As soon as the preference rating certificate covering a project is received by the railroad, it should analyze the materials involved, and if any controlled material in the project will not be shipped by the supplier by April 1, Form CMP-4C should be immediately filed.

(3) On or after April 1, 1943, Form CMP-4C must be filed to procure controlled materials included in the project and will be given an allotment number which will have preference over rated materials which do not have allotment numbers. In filling out sections A and C on Form CMP-4C, careful attention should be given to the construction and purchase schedules on ability to prosecute the work.

Copies of Form CMP-4C and instruction sheet may be secured from your Regional WPB Office. (Signed by Andrew Stevenson, Director, Transportation Equipment Division.)

Holders of Order P-88—Rebuilding or Conversion of Cars and Locomotives

Reference is made to Mr. Cornell's letter of December 22, 1942, concerning the problem of integrating the material needs of the Transportation Industry for maintenance and repair with the procedure under the Controlled Materials Plan.

No change is contemplated at present with respect to the provision of Preference Rating Order P-88 which prohibits the use of material, acquired under P-88, for additions to or expansion of the railroad's property or equipment.

Applicants anticipating the need for controlled materials for use in the rebuilding or conversion of cars or locomotives that results in increase of more than $500 in capital accounts (No. 701 and 702 of I. C. C. Classification of Accounts) must submit application for those controlled materials on Form CMP-4B, beginning with the Second Quarter of 1943. The $500 provision applies to a complete project and is not to be interpreted to permit breaking the project into units of less than $500 each. For examle, if a car rebuilding project results in an A and B charge of $200 per car and more than two cars in the series are to be rebuilt, application should be made as provided in this letter.

Separate forms must be submitted for each different lot of cars or locomotives to be rebuilt or converted. Copies of Form CMP-4B and accompanying instructions pertaining thereto, together with Mr. Kanzler's letter of January 2, 1943, are attached hereto. The instruction governing the preparation of this Form CMP-4B specifies February 9 as the date such application should be submitted to the War Production Board, and it is important that your application be submitted as near to that date as possible. Under heading Product to be Made, as indicated on Form CMP-4B, please write Railroad Car Repairs or Railroad Locomotive Repairs as the case may be.

If the material requested on Form CMP-4B in accordance with these instructions has inadvertently been included in Form PD-351 as submitted in accordance with Mr. Cornell's letter of December 22, 1942, a memorandum should accompany Form CMP-4B detailing the duplication of requests. (Signed by Andrew Stevenson.)

Holders of Order P-88

A number of railroads have called to our attention their inability to purchase new tires from the Firestone Tire and Rubber Company for use of the rail-adapted automobile official inspection car.

This problem has been carefully reviewed with the Rubber Division and favorable consideration has been given for providing the railroads with this tire equipment.

It is our suggestion the railroad company study its requirements of the above noted tires for the coming year both from the standpoint of new tires and tubes that will be required for all existing automobiles now in use, as well as such tires which may still be serviceable, provided they were retreaded. When this information is complete and consideration has been given to your most urgent needs only, write to the Firestone Tire and Rubber Company of Akron, Ohio, informing them of your requirements for both new tires and casings serviceable for retreading and ask them if they are not now in a position to take care of the tire problem for you. (Signed by G. M. Cornell, Deputy Director, Transportation Equipment Division.)

GENERAL NEWS

A.T.A's Rodgers Replies to Pelley

Answers A.A.R. president's recent letter about truck advertisement

Ted V. Rodgers, president of American Trucking Associations, has replied to the letter wherein J. J. Pelley, president of the Association of American Railroads, took issue with the recent A. T. A. advertisement which claimed that "with one-twentieth of railroad capacity, trucks haul one-fourth the load—in less than half the time." The Pelley letter and the accompanying memorandum which undertook to refute that statement were reported in the *Railway Age* of March 6, page 474.

The Rodgers letter is a lengthy one, getting under way with reference to the fact that the Pelley letter had been given to the press where it became the inspiration "for an article in at least one publication which must be considered an attack upon my own personal sincerity and integrity." Thus Mr. Rodgers' decision to release his reply for publication.

Before getting to his undertaking to break down the A. A. R. figures, the A. T. A. president expressed his agreement with Mr. Pelley's suggestion that "both trucks and the railroads are doing a fine job, and that this is no time for competitive bickering." As a matter of fact, as the letter put it, Mr. Rodgers and the industry he represents "have believed and contended for years that bickering of the type that has prevailed between trucks and railroads is scarcely justified at any time." He considers "many of the railroads' anti-truck activities, both past and present, to be in direct conflict with the American way of doing things."

In the latter connection, Mr. Rodgers went on to speak of "railroad lobbyists" with much of their activity "accomplished behind the scenes," and of railroad advertising to which the truckers could have taken exception, but they thought it "pointless" to do so. One advertisement Mr. Rodgers had in mind was that showing a railroad train, a truck and a ship, captioned "Which one pays its way?" and stating that the railroads did while leaving the impression, as Mr. Rodgers saw it, that "the other modes of transport were something akin to parasites." He added: "This, in spite of the study by the federal coordinator of transportation that highway users more than paid their way, while the railroads had received vast subsidies."

Coming finally to the memorandum which accompanied Mr. Pelley's letter Mr. Rodgers' comment on it included the following:

In challenging the statement that trucks have 1/20th the carrying capacity of the railroads, I believe you fell into serious error. In the first place, you dealt with average load, and not capacity. In the second place, you considered the 600,000 for-hire trucks all as intercity units capable of hauling an average of 5.34 tons. * * *

In comparing the capacity of trucks and railroads we can deal only with intercity trucks which perform a service similar to that of the railroads. * * *

In 1940, there were approximately 249,000 for-hire intercity trucks. These trucks, when loaded, carry an average payload of 5.34 tons. Assuming that these trucks were loaded to 70 per cent of capacity, their average capacity is 7.63 tons. Thus, by multiplying the 249,000 for-hire intercity trucks by the 7.63 tons average capacity, we get an aggregate capacity of 1,889,870 tons.

In 1940, there were 468,000 private intercity trucks. These trucks, when loaded, carried an average payload of 2.37 tons. Assuming that these trucks were loaded to 60 per cent of capacity, their average capacity was 3.95 tons. By multiplying the 468,000 private intercity trucks by the average of 3.95 tons, we get an aggregate capacity of 1,848,600 tons.

When the figures for both for-hire and private intercity trucks are totaled, we get a total intercity truck capacity of 3,748,470 tons. This total must be compared with the railroad freight capacity of 82,722,361 tons, a figure published by the railroads themselves. Such comparison shows the ratio of truck capacity to rail capacity is one to 22.

I note that, in challenging the statement that trucks haul one-fourth the load, you deal only with intercity trucks, although in determining truck capacity you include every truck in the United States. * * *

In any event, the director of the Office of Defense Transportation has said in various public utterances that trucks are carrying one-fourth as much freight as are the railroads.

In disagreeing with the director, you cite figures of the Interstate Commerce Commission showing that trucks hauled one-eighth as many ton-miles as the railroads. Thus, we speak of load, or tonnage carried, and you deal with ton-miles. In so doing, I believe you prove our statement. For, if the average haul of truck freight, as is generally acknowledged, is about one-half that of the railroads, then the ratio of one to eight (expressed in terms of ton-miles) becomes a ratio of one to four when expressed in terms of tons.

In commenting upon the statement that trucks deliver in half the time required by the railroads, you [say] * * * nothing * * * to disprove what was said in the ad. On the other hand, the comparative delivery-time figures in our ad were taken from letters written by the shippers. These letters are available for your inspection should you desire to see them.

You also observed that the average revenue of Class I motor carriers was 3.986 cents for hauling one ton of freight one mile, while the average revenue of the rails was 0.945. I do not know what this has to do with the ad in question, but I do take issue with your conclusion that: "The cost of truck service to the shipper as compared with the cost of railroad service is four to one." * * *

The truth is that the misleading averages you quote result from factors which have nothing whatever to do with the cost of transportation to the shipper. The railroad average is lowered by movement of vast quantities of low-rate commodities that are not handled by trucks. * * *

Puerto Rico's Trucks Under ODT

Commercial motor vehicles in Puerto Rico came under Office of Defense Transportation control March 11, as the result of General Order ODT 34, setting up for that island a certificate of necessity arrangement similar to that effective in the United States. Some 20,000 trucks will be effected. The order will go into effect between April 1 and June 1, the exact date to be determined by the regional director for Puerto Rico.

Pacific Electric Wage Case Heard

Trainmen on interurban line insist on pay equality with steam roads

Following a week's recess, the hearing in the wage case involving trainmen and yardmen of the Pacific Electric Company (controlled by the Southern Pacific), was resumed before an emergency panel of the Railway Labor Board, at Los Angeles, Calif., on March 15. As reported in issues of the *Railway Age* for March 6 and 13, the Brotherhood contends that trainmen of the Pacific Electric should receive rates of pay comparable to those on steam railroads for similar work, while the company contends that transit company rates should continue to prevail.

Upon the resumption of the case, with Judge James H. Wolfe, chairman of the panel, presiding, the Brotherhood presented its concluding evidence, and Frank Karr, vice-president and chief counsel of the Pacific Electric, planned to begin the introduction of testimony for the company on March 17, with the expectation that at least the remainder of the week would be required to complete the presentation of that testimony.

On March 15 and 16, the Brotherhood representatives continued offering testimony and exhibits to establish that wage scales and working conditions for passenger trainmen in interurban service on various railroads in a number of sections of the country are similar to those on standard steam lines, but counsel for the Pacific Electric Company insisted that in practically all cases cited, the trains, even though electrically operated, are run over the main lines of railroads with private rights of way, rather than over city streets in what the company holds is transit line service.

As the wage controversy involves the drivers on a number of bus lines operated by the Pacific Electric, testimony was offered to show that wages paid on transcontinental bus lines, as in the case of steam-line operated bus lines, are higher than those paid by the Pacific Electric. This testimony brought out that the drivers of transcontinental buses are paid on a mileage basis and that their earnings have decreased in recent months as a result of the war-time 35-mile speed limit. Attorney Karr stressed that Pacific Electric drivers are paid on a straight hourly basis and that the speed restriction and heavier traffic have resulted in the addition of 15 motor coaches on the various lines of the company, giving added employment.

In its opening presentation, the Brother-

hood has submitted a total of 50 exhibits for the consideration of the panel, the final ones presented on March 16 detailing the reputed average wages in a number of California industries, including local shipyards. It was argued that these showed that most workmen were earning from $1.00 to nearly $1.50 an hour "in the local labor competitive field" against an average of about 75 cents an hour for Pacific Electric passenger service men. Attorney Karr contended that the earnings shown for other industries included those of workers in higher brackets and were not comparable to average transit line wages, in which bracket he insisted the Pacific Electric passenger trainmen should be placed.

The afternoon session on March 16 was devoted to the presentation of testimony concerning wages and negotiations for yardmen, jurisdiction for whom was taken over by the Brotherhood of Railway Trainmen early last year.

Bill to Require Competitive Bidding on Securities

Senator Shipstead, Republican of Minnesota, on March 12 introduced in the Senate a bill (S.874) providing that the Inter-State Commerce Commission shall require competitive bidding for all railroad securities authorized by the commission where such securities are offered for sale. The bill was referred to the committee on interstate commerce.

1942 Revenue Traffic Statistics

The Interstate Commerce Commission this week made public the latest issue of its Bureau of Transport Economics and Statistics' Statement No. M-220, showing revenue traffic statistics of Class I roads for December and last year's 12 months. The 12-months averages for country as a whole reveal that revenue per ton-mile at 9.32 mills was down slightly from 1941's 9.36 mills, while revenue per non-commutation passenger-mile was up from 1.87 cents to two cents.

Reflecting last year's longer hauls, the average revenue per ton per road was up from $1.94 to $2.11, while the average non-commutation passenger of 1942 paid $2.45 as compared with $1.86 the previous year. Last year the average haul per ton was 226.5 miles while the average journey per passenger was 122.5 miles, compared, respectively, with 1941 figures of 207.4 miles and 99.4 miles. The 12 months aggregates and averages for all Class I roads are given in the accompanying table.

Further Freight Tax Exemption

The provision of the Internal Revenue Code exempting from the tax on transportation of property shipments on which freight charges are paid by the federal government or its agencies would be extended to cover freight charges paid by any state or group of states or agencies thereof by a bill (H.R. 2167) introduced in the House March 11 by Representative Maloney, Democrat of Louisiana.

Congress Approves Reallocation of Study Board Funds

The conference report on H. R. 1975, the First Deficiency Appropriation Bill for 1943, was adopted in both branches of Congress this week, including the Senate amendment which will permit the Transportation Board of Investigation and Research to reallocate its present funds if the outlook for a fiscal 1944 appropriation does not improve and the Board must prepare to wind up its affairs by next June 30.

Explaining the item to the Senate, Senator Hayden, Democrat of Arkansas, recalled how the Board's current appropriation was "conditioned upon the understanding that the agency would wind up its business completely by June 30 of 1943." He added: "It has been asserted that in order to do so the agency needs the proposed increase in printing and travel allowances. It has indicated that it will close up its business. For that reason the committee was willing to increase the limitation, which does not increase the appropriation. . . ."

AGGREGATES	UNITED STATES 1942	1941
Miles of road operated at close of month, freight service*	229,874	230,977
Miles of road operated at close of month, passenger service*	164,111	167,853
Number of revenue tons carried	2,817,320,923	2,290,330,598
Number of revenue tons carried one mile (thousands)	638,069,444	475,053,822
Freight revenue (whole dollars)	$5,947,638,818	$4,445,012,344
Number of revenue passengers carried:		
6-01. Commutation passengers	270,278,826	232,456,248
6-02. All other passengers	399,220,582	254,125,890
6-03. Total	669,499,408	486,582,138
Number of revenue passengers carried one mile:		
7-01. Commutation passengers	4,761,074,554	4,087,820,527
7-02. All other passengers	48,914,487,644	25,272,074,901
7-03. Total	53,675,562,198	29,359,895,428
Passenger revenue (whole dollars):		
8-01. Commutation fares	$50,578,130	$41,164,869
8-02. All other fares	$977,728,330	$473,486,577
8-03. Total	$1,028,306,460	$514,651,446
Passenger service train revenue (whole dollars)	$1,262,038,871	$700,024,571
Passenger train-miles	429,920,131	403,621,304
Passenger carrying car-miles	2,262,379,756	1,829,511,917
AVERAGES		
FREIGHT TRAFFIC:		
Miles per revenue ton per road	226.5	207.4
Revenue per ton-mile (cents)	0.932¢	0.936¢
Revenue per ton per road (dollars)	$2.11	$1.94
COMMUTATION PASSENGER TRAFFIC:		
Miles per passenger per road	17.6	17.6
Revenue per passenger-mile (cents)	1.06¢	1.01¢
Revenue per passenger per road (dollars)	$0.19	$0.18
ALL OTHER PASSENGER TRAFFIC:		
Miles per passenger per road	122.5	99.4
Revenue per passenger-mile (cents)	2.00¢	1.87¢
Revenue per passenger per road (dollars)	$2.45	$1.86
TOTAL PASSENGER TRAFFIC:		
Miles per passenger per road	80.2	60.3
Revenue per passenger-mile (cents)	1.92¢	1.75¢
Revenue per passenger per road (dollars)	$1.54	$1.06
Revenue passenger-miles per train-mile	124.9	72.7
Revenue passenger-miles per car-mile	23.7	16.0

No 1943 Meeting of American Short Line Association

There will be no 1943 meeting of the American Short Line Railroad Association, the membership having recently voted to accept its board of directors recommendation in that connection. Regional meetings may be held if they are deemed necessary.

House Committee Approves Jersey Canal Bill

The House committee on rivers and harbors this week voted to report favorably a bill introduced by Representative McCormack, Democrat of Massachusetts, to provide for the construction of the New York Bay-Delaware River section of the Atlantic Intracoastal Waterway. The favorable report was voted on H. R. 2208 which Mr. McCormack had substituted for his original measure—H. R. 1880.

The revised version embodies an amendment stipulating that local interests shall not be required to provide the right of way and pay for bridge alterations as recommended in the Army engineers report on the project. Thus H. R. 2208 would authorize a federal appropriation of $199,000,000 as compared with the $187,000,000 provided in the original version.

February Export Traffic

Cars of export freight other than grain or coal unloaded at Atlantic, Gulf and Pacific ports in February totaled 79,716 cars compared with 57,864 in February 1942, according to the Association of American Railroads. Cars of grain for export unloaded in February at these ports totaled 2,796 cars compared with 2,134 in the same month last year.

Amends Income Tax Regulations on Debt Reductions

The Commissioner of Internal Revenue has brought into line with the Revenue Act of 1942 those income tax regulations covering situations wherein railroad companies purchase their own obligations at a discount. The 1942 act removed the requirement that a road must be "in an unsound financial condition" to qualify for relief from income taxes on the paper profits involved.

January Locomotive Shipments

January shipments of railroad locomotives totaled 159 as compared with 146 in December and 89 in January, 1942, according to reports from builders other than railroad shops to the Department of Commerce's Bureau of the Census. The January, 1943, total included 104 steam locomotives and 55 Diesel-electrics.

Unfilled orders at the end of January totaled 2,043 locomotives, compared with

1,197 as of January 31, 1942. The former figure included 1,249 steam locomotives, 43 electrics, 746 Diesel-electrics and five of other types.

Data supplied by the Car Service Division, Association of American Railroads, on locomotive building in railroad shops show that 17 locomotives, all steam, were thus produced in January, as compared with 14 in December and five in January, 1942. As of the close of January railroad shops had unfilled orders for 109 locomotives, including 96 steam and 13 electrics; on January 31, 1942, unfilled shop orders totaled 35, including 20 steam and 15 electrics.

Club Meetings

The Railway Club of Pittsburgh will meet at 8 p.m. on March 25 at the Fort Pitt Hotel. Professor S. W. Dudley, dean of engineering of Yale University, will address the meeting on the subject of "Engineering Training for Young Men Entering Railroad Service."

Great Lakes Board Meeting

Plans to handle the expected increase in traffic during the coming months will be made at the twentieth annual meeting of the Great Lakes Regional Advisory Board at Buffalo, N. Y., on March 24. A feature of the meeting will be an address by Samuel B. Pettengill, vice-president and general counsel of the Transportation Association of America, who will speak at a luncheon. Speakers at the morning session will include Robert J. Bowman, president of the Pere Marquette, Caleb R. Megee, manager of the Open Top section of the Car Service division of the Association of American Railroads, and William J. McGarry, manager of the Ore and Coal Exchange of Cleveland.

Senate Votes to Create Own Post-War Committee

The Senate on March 12 adopted Senate Resolution 102 which establishes a special "Committee on Post-War Economic Policy and Planning," consisting of six Democratic and four Republican senators to be appointed by Vice President Wallace. The resolution was sponsored by Senator George, Democrat of Georgia.

It provides $50,000 for the work of the committee which is directed "to investigate all matters relating to post-war economic policy and problems; to gather information, plans, and suggestions from informed sources with respect to such problems; to study the plans and suggestions received; to report to the Congress from time to time the results of findings made and conclusions reached."

Pullman Gets a Radio Safety Award

A "liberty bell" trophy was presented to Harry Guilbert, director of Pullman's bureau of safety and compensation, on March 12 by Liberty Magazine, sponsors of a weekly broadcast entitled "The Ghost Shift." This is a program designed to emphasize the dangers of carelessness which result in death or injury in industrial accidents, and the award is given to holders of outstanding safety records. The trophy was presented to Pullman because during the first year of war its six repair shops had a perfect safety record of over 7,000,000 man-hours without a lost-time accident. The awards are certified by the National Safety Council and its War Production Fund to Conserve Manpower.

E. H. Fritch, Retired A. R. E. A. Secretary, Dies

E. H. Fritch, secretary of the American Railway Engineering Association from 1906 until his retirement on May 1, 1937, died at South Bend, Ind., on March 18. Mr. Fritch was born at Galena, Ill., on March 13, 1860, and in his early years worked as a printer's devil at Springfield, Ill., and later as a printer for the Curtis Publishing Company, Philadelphia, Pa. He entered railway service in April, 1896, in the traffic department of the Baltimore & Ohio Southwestern (now part of the B. & O.) at Washington, Ind., and in July, 1897, was transferred to the office of the division

E. H. Fritch

engineer. In February, 1900, shortly after the organization of the American Railway Engineering and Maintenance of Way Association (now the A.R.E.A.) he became assistant secretary, with headquarters at Chicago, and in March, 1906, he was elected secretary, which position he held until his retirement. In this capacity, Mr. Fritch wielded a strong influence on this association, especially during its formative years, and the high-standards of its committee and other activities, and of its proceedings, are due in large measure to his insistence upon thoroughness in all details.

Bus Operations Co-ordinated

Plans submitted by bus operators under General Order No. 11 of the Office of Defense Transportation for co-ordinated intercity operations have been approved by that office in special orders applying to the services of the Pennsylvania Greyhound Lines, affiliate of the Pennsylvania, and the Lake Shore Coach Company between Norwalk, Ohio, and Toledo, and to the services of the Northern Pacific Transport Company and the Burlington Transportation Company between Billings, Mont., and the Montana-Wyoming state line via Bridger, Mont.

The Lake Shore line will share its local stop privileges with the Pennsylvania Greyhound in the territory named, and the latter line will honor the former's intra-state tickets. Under certain restrictions, the Burlington subsidiary is authorized to provide intra-state service in the Montana area named in the order, and to share depot and sales facilities with the Northern Pacific bus line. Both orders become effective March 27.

Representation of Employees

As the result of an election under the National Mediation Board's procedure the National Council of Railway Patrolmen's Unions, A. F. of L., has been authorized to represent patrolmen and special agents of the Elgin, Joliet & Eastern for the purposes of the Railway Labor Act. The same union was chosen to represent such employees of the Washington Terminal Company.

Maintenance of way employees of the Colorado & Wyoming in an election chose the United Steelworkers of America, C. I. O., as their representative, while the Brotherhood of Sleeping Car Porters was authorized by the board to represent Chesapeake & Ohio train porters. In other cases decided by it, the board authorized the Brotherhood Railway Carmen of America, A. F. of L., to represent carmen on the Union Terminal (St. Joseph, Mo.), and the Switchmen's Union of North America to represent yardmen on the Spokane International. In all of these cases the employees were not represented when the board's services were sought.

ODT Prepares for New Records in Great Lakes Traffic

Although continuing sub-zero temperatures on the upper Great Lakes indicated that opening of the 1943 shipping season may have to be postponed until about April 1, and possibly even later, the Office of Defense Transportation nevertheless anticipates that last year's all-time record of 178,577,828 net tons of commercial bulk freight moved on the lakes will be substantially exceeded, perhaps by as much as 7 per cent, it was announced March 11.

To allow free movement of coal and grain on the lakes before the iron ore traffic reaches its full tide, the ODT has temporarily suspended restrictions put into effect last year to give preferential treatment to ore shipments. Until May 1, restrictions on coal movements are lifted by Suspension Order ODT 9-1, while Suspension Order ODT 25-3, which is effective until further notice, removes the requirement for ODT permits for commercial vessel movements on the lakes.

The 1942 record tonnage figures resulted from the movement of 103,125,995 net tons of iron ore, 47,814,347 net tons of bituminous coal, 565,176 net tons of anthracite, 8,492,262 net tons of grain, and 18,570,048 net tons of limestone, the announcement revealed. This year iron ore shipments

are expected to amount to at least 106,400,000 net tons, it was added, and petroleum movements to the East over lake routes probably will reach a maximum during the summer of 76,000 barrels a day.

Freight Car Loading

Loadings of revenue freight for the week ended March 13 totaled 769,042 cars, the Association of American Railroads announced on March 18. This was an increase of 20,152 cars or 2.7 per cent above the preceding week, a decrease of 30,314 cars or 3.8 per cent below the corresponding week last year, and an increase of 9,435 cars or 1.2 per cent above the comparable 1941 week.

Loading of revenue freight for the week ended March 6 totaled 748,890 cars and the summary for that week, compiled by the Car Service Division, A.A.R., follows:

Revenue Freight Car Loadings

For the Week Ended Saturday, March 6

District	1943	1942	1941
Eastern	151,336	162,712	168,753
Allegheny	163,832	172,212	167,998
Pocahontas	56,746	43,960	52,346
Southern	116,488	120,223	113,903
Northwestern ..	80,807	93,380	83,861
Central Western	113,933	116,454	103,960
Southwestern ..	65,748	61,544	51,796
Total Western Districts	260,488	271,378	239,617
Total All Roads	748,890	770,485	742,617
Commodities			
Grain and grain products	50,440	38,356	31,113
Live stock.....	12,850	10,689	9,914
Coal	174,617	145,218	158,936
Coke	15,221	13,755	14,119
Forest products	39,499	43,132	38,385
Ore	13,024	13,341	12,602
Merchandise l.c.l.	93,729	148,513	158,910
Miscellaneous .	349,510	357,481	318,638
March 6.....	748,890	770,485	742,617
February 27...	782,855	781,859	756,670
February 20...	752,449	774,420	678,523
February 13...	764,950	782,701	721,176
February 6...	755,286	783,962	710,196
Cumulative Total, 10 Weeks....	7,335,379	7,751,906	7,063,591

In Canada.—Car loadings for the week ended March 6 totaled 63,724 as compared with 65,170 for the previous week and 62,137 for the corresponding week last year, according to the compilation of the Dominion Bureau of Statistics.

Total for Canada:	Total Cars Loaded	Total Cars Rec'd from Connections
March 6, 1943.....	63,724	38,057
February 27, 1943....	65,170	40,663
February 20, 1943....	59,462	36,076
March 7, 1942.....	62,137	33,609
Cumulative Totals for Canada:		
March 6, 1943.....	585,008	349,778
March 7, 1942.....	607,252	312,971
March 8, 1941.....	528,602	270,634

ODT Appointment

Louis C. Fritch has been appointed supervisor of rail terminals at Los Angeles, Calif., for the Office of Defense Transportation. An ODT field consultant since September, 1942, he now takes the place of Ernest A. O'Donnell, whose appointment to the Houston, Tex., field office of the ODT was announced in *Railway Age* of March 13, page 522.

Mr. Fritch began his railroad service on the Baltimore & Ohio in 1892 as engineer of maintenance of way. Later he held engineering and executive positions with the Illinois Central and Chicago Great Western, while he was general manager and assistant to the president of the Canadian National from 1914 to 1917. During World War I he was general manager of the Seaboard Air Line. From 1920 until his retirement in 1936 he was vice-president in charge of operations, construction and maintenance of the Chicago, Rock Island & Pacific.

Sir Ernest Lemon Retires

Sir Ernest J. H. Lemon, O.B.E., vice-president of the London, Midland & Scottish, retired from that position in February, according to the Railway Gazette (London). Sir Ernest was born in Dorset in 1884. He was educated at Heriot Watt college, Edinburgh, and completed his technical training as a mechanical engineer by serving consecutively with the North British Locomotive Co., Ltd.; Brown Bros. (hydraulic engineers); the Highland Railway Co.; and Hurst, Nelson & Co.

In 1911 he joined the staff of the Midland Railway Company as chief wagon (i.e., car) inspector, becoming works manager in 1917. Upon the formation of the London, Midland & Scottish in 1923, Sir Ernest was appointed divisional carriage and wagon superintendent and in 1927 was advanced to that position for the entire system. He was appointed chief mechanical engineer of the company, in charge of rolling stock and motive power in 1931, and the following year he was appointed vice-president (operating and commercial).

During the time he served in the mechanical department of the road, Sir Ernest was active in the reorganization of the company's shops—in the production of new rolling stock to offset the effects of the first World War—and in the introduction of mass production methods both for new construction and repairs to equipment. As vice-president of the road he sponsored many projects designed to increase the efficiency of all operations in the traffic department.

In June, 1938, at the request of the government, Sir Ernest became director-general of aircraft production in the Air Ministry. He resumed his duties as vice-president of the L. M. S. R. in 1940. In appreciation for services rendered to the government in carrying out this special assignment, he was knighted in 1941. In 1942 he was engaged for a period on a special investigation for the Minister of Production on wartime aircraft problems and he is still a member of the Minister's Industrial Panel.

Income-Tax Accounting Will Require Depreciation Reserve

Railroads making for income-tax purposes a change from retirement to depreciation accounting for fixed property in order to tie in with Interstate Commerce Commission requirements effective January 1, must agree to set up a reserve for accrued depreciation, which reserve would be deducted from surplus, thus reducing invested capital for excess profits tax purposes. The Association of American Railroads has been so informed by the Commissioner of Internal Revenue who has thus adhered to previously-expressed views which the railroads have said would impose "arbitrary and unreasonable" conditions, perhaps making it necessary for some roads to keep two sets of books—continuing on the retirement basis for income-tax purposes while reporting to the I.C.C. on the depreciation basis.

The A.A.R. views were set forth in a brief filed with the Commissioner several months ago, as noted in the *Railway Age* of May 2, 1942, page 867. Not only has the Commissioner not changed the requirements there criticized, but he has gone further to make it plain, as indicated above, that, in his opinion, earned surplus included in invested capital must be reduced by the amount of the reserve set up for the accrued depreciation. The Commissioner takes the position that the conditions under which permission for the change will be granted are within his discretion, and he has set them up as follows:

> Each railroad is required to irrevocable agree: (1) that a reserve for accrued depeciation . . . shall be set up as of the date the change in accounting method is effective; (2) that the remaining sum to be recovered through depreciation allowances shall be limited to the cost or other basis, less the depreciation so accrued; (3) that neither the change of method nor the amount of depreciation so accrued shall have any effect on taxable net income for any year ending prior to the date of change in accounting method; (4) that the depreciation rates agreed to are subject to modification, if subsequent experience indicates that revision is necessary in order to spread the cost of the assets over their remaining useful lives; such revision, however, is not to be made retroactive; and (5) that complete depreciation accounting in accordance with all of the applicable sections of the Internal Revenue Code and Regulations shall be adopted for those accounts which are changed from retirement to depreciation accounting.

Railroads desiring to make the change for the current year must apply by March 31, this being in accordance with the regulation that any taxpayer desiring to change his method of accounting must make application for permission to do so within 90 days after the beginning of the taxable year in which the change is to be made.

How the Transport Corps Is Operating in England

Colonel Norman A. Ryan, deputy chief of transportation, E.T.O., U. S. Army, presented to a recent luncheon meeting of the Institute of Transport in London an address prepared by Major-General John C. H. Lee, Commanding Services of Supply in the European Theatre, which the general was prevented from delivering in person.

General Lee's paper, as reported in Modern Transport (London) described the way in which the U. S. Army was reorganized in February, 1942, into three main divisions, namely, (a) the ground force, (b) the air force and (c) the services of supply. The service branches of the army were all assigned to (c), with the Transportation Corps set up as a new division of the S.O.S., and with all transportation functions centralized in this corps. Transportation officers and men in the Corps of Engineers were transferred to the Transportation Corps. He went on to explain that the T.C. had several divisions, namely, a marine section, a railroad section, a traffic section and an executive and planning section, and told something of the functions of these different divisions.

In the European Theatre of Operations, Major-General Lee continued, the traffic

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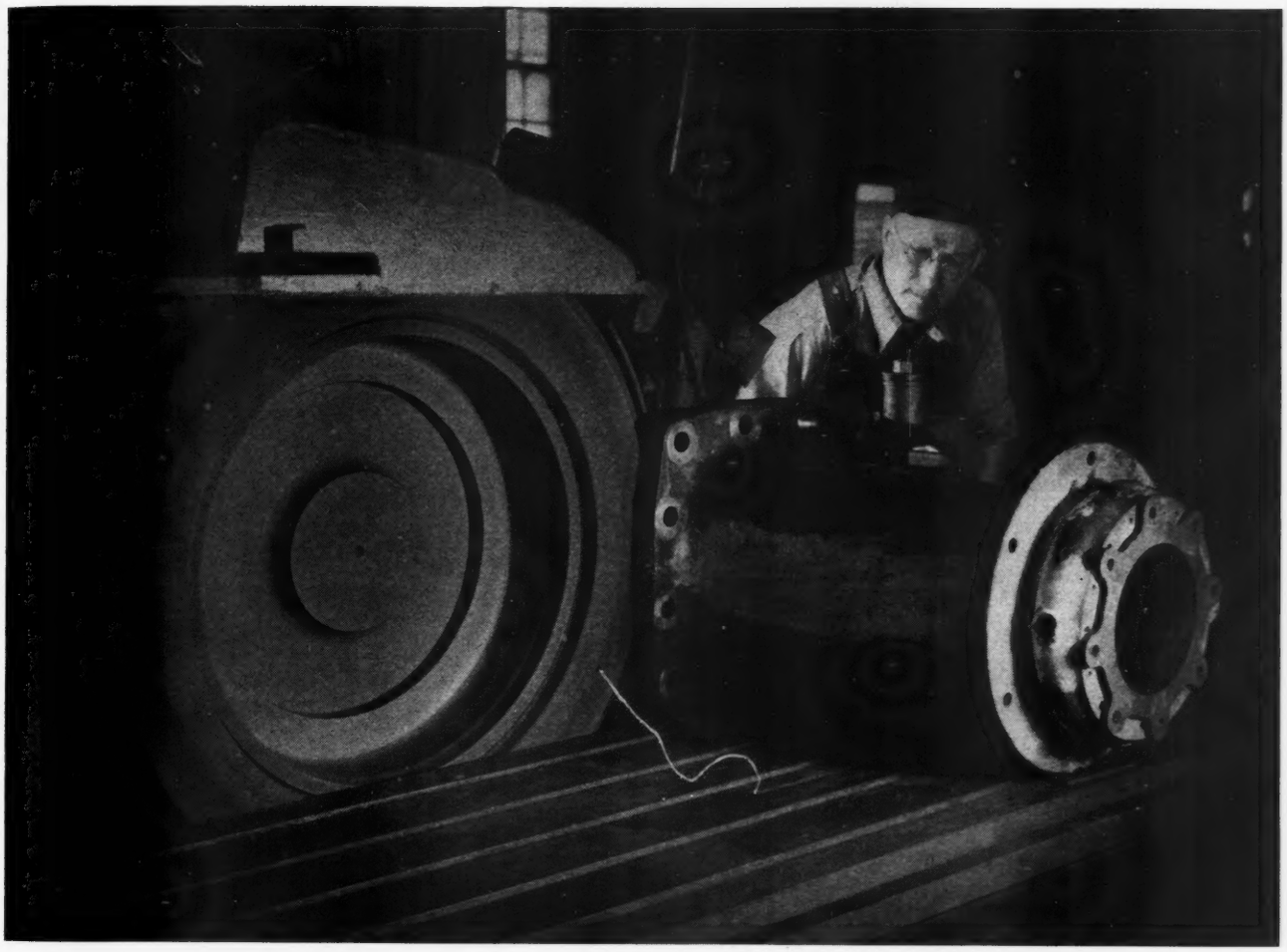

Joints under pressure are made steam tight at Lima. By such attention to details Lima has won a reputation for soundness of construction that backs up its leadership in locomotive design.

SERVICE ...the proving ground of locomotives

The long, grueling service under which locomotives have been operating for the past few years is a worthy proving ground of soundly-built locomotives.

Lima-built locomotives have long had a reputation for high performance and for low maintenance. And today this reputation is being further augmented by the high "availability" of Lima power.

The ability of Lima-built locomotives to "take it" is due in great measure to the many special methods and tools that have been developed at Lima to insure greater accuracy of manufacture and resultant higher degree of availability.

LIMA LOCOMOTIVE WORKS LIMA LOCOMOTIVE WORKS INCORPORATED **INCORPORATED, LIMA, OHIO**

control organization is modeled largely on the British War Office Movement Control. The Army's rail traffic officers are stationed at important points throughout the territory where operations are carried on and these officers work closely with British railway officers in expediting the flow of passengers and freight. The Transportation Corps has also taken over from the Corps of Engineers the operation and maintenance of all military railways—both in Europe and in the United States. He revealed that at certain important American military depots in the British Isles, all switching is now carried on by American railway forces of the Transportation Corps. British civilian-operated railway service handles most of the general business of the Transportation Corps on the main line to and from depots, along with other civil and military traffic. He reported that several weeks ago, for the first time in history, as far as is known, an American train crew operated a freight train on a British main line railway as a part of the day's operations.

The planning division of the T.C. is expected to foresee eventualities which may develop to prepare alternate plans so that a smooth flow of supplies is assured. It must also see to it that specialized equipment, such as ambulance trains, wrecking trains, armored locomotives and cars and special-type cars for carrying tanks and heavy artillery pieces, are available when needed. Preparation must also be made to meet the destruction of bridges and other enemy action.

Major-General Lee mentioned several instances of Anglo-American cooperation in the transportation field which have resulted from joint planning. Railway cars are shipped to Britain knocked down in sections which can readily be erected and which, when welded together, make a complete car with a minimum of time spent in construction. For railway operation under fire, where the regular wrecking equipment is not flexible enough, the Transportation Corps has designed and built a piece of special off-track motor equipment. Mobile locomotive shops for the use of the Transportation Corps are also under construction in England.

Resources Board Report Looks at Rail Retirement System

The National Resources Planning Board's "Security, Work, and Relief Policies" report which President Roosevelt sent to Congress last week along with the Board's "National Resources Development Report for 1943" contains considerable discussion about the railroad retirement and unemployment insurance systems administered by the Railroad Retirement Board. The transportation phase of the development report which embodies an over-all program of post-war planning was summarized in the *Railway Age* of March 13, page 521.

The security report is a document of 640 double-column pages, embodying plans for "cradle to the grave" security. Its discussions of existing social security systems for railroad employees are mainly descriptive, although here and there is found an appraisal of the present set-up and the benefits provided.

Comparing Railroad Retirement Act benefits with those under the general social security legislation, the report says that the former "are at present seemingly high." The national average for old-age and survivors insurance payments to primary beneficiaries with no dependents "is only about one-third of railroad retirement benefits, and a little over half where the primary beneficiary has a wife entitled to dependent's benefits." Survivors' benefits under railroad retirement legislation "are also superior to Social Security Act payments to widows without children"; however, widows with dependent children under the Social Security Act "receive, on the average, higher payments than do widows of railroad workers, reflecting the absence of orphans' benefits from the railroad retirement plan."

With respect to coverage under the Railroad Retirement Act, the report had this to say: "In contrast to the 50 million account holders under old-age and survivors insurance, railroad workers . . . enjoy more certain coverage. The railroad retirement system does not require a specific amount of contributions or any particular sequence of earnings from covered employment. Hence, the 2.25 million railroad workers who had accumulated some wage credits from railroad employment by June 30, 1940, were fully 'covered' and could look forward to an annuity . . . even though not more than about 1.5 million railroad workers are contributing to the insurance scheme at any given time. . . . Low earnings or unemployment affect only the amount of the benefits which eligible workers can claim."

In a section of the report devoted to "Administration of Diversified but Related Programs," it is suggested that "anomalous situations" arise because the Railroad Retirement Board was not, as was the Social Security Board, brought under the Federal Security Agency as a result of the 1939 reorganization of federal agencies.

"Under the present arrangements," the report goes on, "there is no assurance that problems which are a common concern of all insurance systems . . . will receive simultaneous consideration from Congress. Nor is there a desirable degree of coordination in regard to important financial aspects of the insurance programs administered by the Social Security Board and the Railroad Retirement Board. The railroad retirement system, conceived on a reserve basis, would require a contribution rate of 10 or 11 per cent of wages in order to be self-supporting. The Railroad Retirement Board has recommended that instead of increasing the tax rates immediately, Congress should outline a definite policy with respect to contributions from general revenues. On the other hand, old-age and survivors insurance is no longer on a full reserve basis. . . . No policy has yet been formulated regarding the role of a contribution from general revenues. It would seem desirable that, if radical changes in the financing of the railroad system are contemplated, they should be correlated with similar financial decisions in regard to old-age and survivors insurance, and vice versa."

Another situation resulting from the independent status of the Railroad Retirement Board was listed in the report as that of 1940 when R.R.B. and the Social Security Board submitted to Congress independently developed programs and "conflicting estimates and evidence" with respect to a proposed unemployment insurance plan for seamen. Also, mention is made of lack of uniform policy in the selection of regional areas and offices and in the responsibilities assigned to regional officials.

President Roosevelt's message transmitting the reports to Congress did not commit him as to the detailed recommendations, but it did say that "We can all agree on our objectives and in our common determination that work, fair play, and social security after the war is won must be firmly established for the people of the United States of America." Observers did not expect any action from a Congress which has recently refused to meet Bureau of the Budget requests for further appropriations for the Resources Board.

Allegheny Advisory Board Meeting

Joseph B. Eastman, director of the Office of Defense Transportation, spoke extemporaneously at the luncheon of the Allegheny Regional Advisory Board at the Hotel William Penn, Pittsburgh, Pa., on March 17, and Warren C. Kendall, chairman of the Car Service Division of the Association of American Railroads addressed the meeting on the car supply problem, with emphasis on the open-top car supply following which officers of the board for the coming year were elected. Carloadings in the Allegheny Board territory for the second quarter of 1943 are expected to be 2.3 per cent less than those of a year ago, according to reports of the organizations commodity committees. The decrease is largely due to the heavier loading of freight cars and an anticipated reduction of 10 per cent in the loading of iron and steel.

Greatly increased transportation demands in the Allegheny district are creating an open-top car supply problem, Mr. Kendall said. "Everyone hopes a car shortage will not come but if one should develop, it will more than likely be with respect to those types used most commonly in handling the raw materials to the great producing centers in this district."

Due to war conditions, Mr. Kendall added, thousands of open top cars belonging to railroads in the Allegheny region are in service on roads in other parts of the country, but these are being returned to home territory as rapidly as possible.

"The problem of the Car Service division of the Association of American Railroads," Mr. Kendall continued, "is to restore to the railroads of this district the cars of their ownership or their equivalent in such measure as may be necessary to meet demands. Special and mandatory orders are outstanding which will provide all practical assistance. Railroads in the West and Southwest are to return the principal Allegheny and Eastern ownerships empty. Roads

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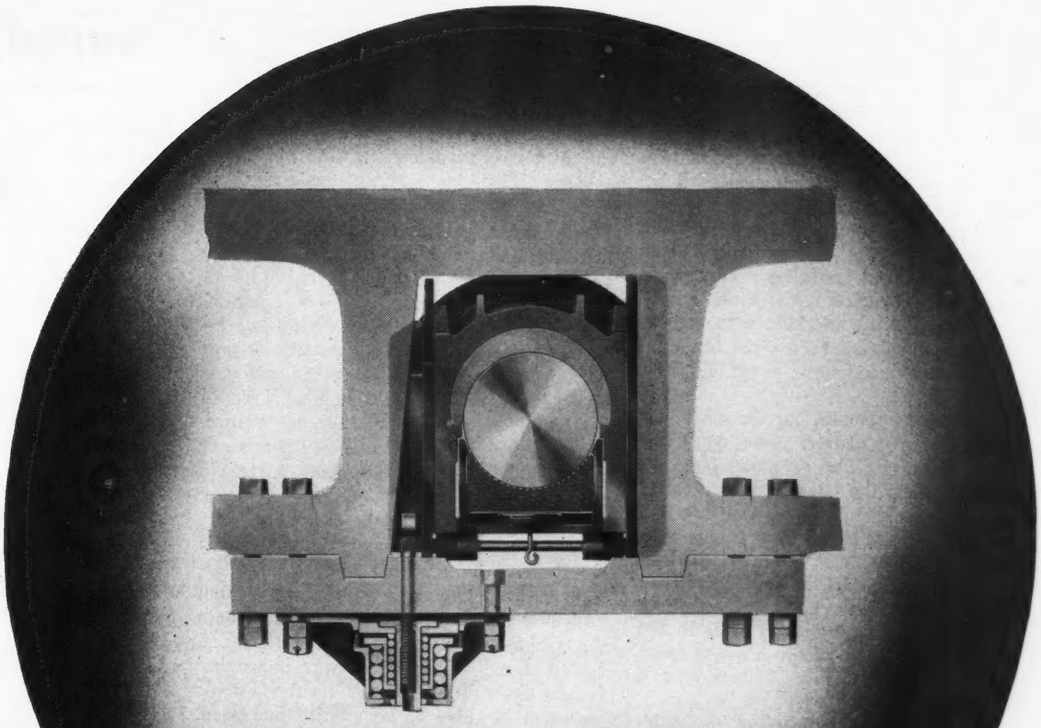

BEARING PROTECTION *for* *Overworked* LOCOMOTIVES

Locomotives were never worked harder than today. Never has it been more important to keep them on the road.

Thousands of locomotives are running longer between shoppings thanks to their Franklin Automatic Compensators and Snubbers.

This Franklin device compensates for driving box expansion due to temperature change and other operating conditions. It has ample reserve strength to take care of the high piston thrust of large locomotives and at the same time there is no chance for tight or stuck boxes.

By maintaining accurate driving box adjustment, the Franklin Automatic Compensator and Snubber increases locomotive mileage between shoppings and greatly prolongs the life of every bearing on the locomotive.

FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK CHICAGO

In Canada: FRANKLIN RAILWAY SUPPLY COMPANY, LIMITED, MONTREAL

in the Southeast are being required to forward at once 15 per cent of all gondola cars on their lines to home territory."

Explaining why traffic is expected to continue to increase in the Allegheny district during the year, Mr. Kendall stated: "The volume of ore which it is planned shall be brought down the Lakes will reach the new all-time high of 95 million long tons. This means more pig iron and more steel to be shipped. Coal mines have gone on a six-day week producion basis, which somewhat complicates the situation surrounding the distribution of coal cars to the bituminous mines in Pennsylvania, West Virginia and Ohio.

"Requirements for coal for the mills and furnaces in this district will doubtless reach a new high. The demands for coal from the Head of the Lakes, which directly concerns railroads and shippers in this territory, will exceed those of previous seasons. The 1942-43 carry-over of coal at Duluth and Superior is, or shortly will be, practically exhausted. Tonnage of fluxing stone will increase commensurate with the increased consumption of ore brought down from the mines of northern Minnesota and Wisconsin."

The following new officers of the Allegheny Board were elected at the meeting: General chairman, Edwin C. Jepson, general traffic manager of the Wheeling Steel Corporation, Wheeling, W. Va.; vice general chairman, W. P. Buffington, traffic manager of the Rochester & Pittsburg Coal Company, Indiana, Pa.; chairman of the executive committee, Floyd M. Russell, traffic manager of the General Fireproofing Company, Youngstown, Ohio; vice chairman of the executive committee, John B. Keeler assistant general traffic manager of the Koppers Company, Pittsburgh; general secretary T. W. Hartsock, traffic manager of the American Lime & Stone Company, Bellefonte, Pa.; and field secretary, Thomas W. Flickinger, of Pittsburgh.

Senator Downey Wants Transport Workers Deferred

Senator Downey, Democrat of California, is so concerned about the manpower shortage in the transportation industry that he is "desperately anxious that the federal government shall take some wise and far-reaching step to prevent the breakdown of our transportation systems on the Pacific coast." He made this remark this week in a Senate speech discussing his proposal to have employees of transportation companies deferred under the Selective Service System.

Mr. Downey had offered his proposal as an amendment to a pending bill, S. 729, which provides for the deferment of persons engaged in agriculture; but he later withdrew the amendment, planning to introduce a separate measure. As set forth in the withdrawn amendment, the Downey proposal would direct selective-service local boards to defer necessary transportation workers in areas where the Office of Defense Transportation certified there was a shortage or threatened shortage of such workers. Before next Christmas rolls around, Mr. Downey said, California "must take out of the trucks which now lack drivers, out of the cabs of locomotives, out of shipbuilding plants, and aircraft and other essential factories over a thousand men a day in order to satisfy the call of the government for the military."

Meanwhile, the senator made several references to transport conditions on the Pacific coast, calling the situation in the trucking industry "so terrible that the truck drivers are working 75 to 100 hours a week."

Every day for the past 90 days, he said, "there has been a greater amount of freight piled up around the San Francisco Bay area which the trucks could not handle than there was the day before. There is freight in carloads which can not even reach the San Francisco ports, 75 and 100 miles away."

Speaking later along the same lines Mr. Downey had this to say: "In California right now, the trucking and railroad industries are close to a breakdown. I am informed that lend-lease shipments through the Golden Gate have greatly increased, and that the shipments of war industries' freight from the Atlantic to the Pacific seaboard is going to be greatly increased. I am also informed that a year from now there will be in California hundreds of thousands of soldiers more than there are now, and, of course, their persons and the freight needed by them will have to be moved by railroad or truck."

In the course of the same debate, Senator Wheeler, Democrat of Montana, inserted a letter he had received from T. C. Cashen, chairman of the Railway Labor Executives' Association. Mr. Cashen complained that the railroad industry "has been robbed of manpower that will be sorely needed before the end of this year because General Hershey and others in authority seem to have failed to recognize that transportation is one of the greatest factors in promoting a necessary and successful war effort."

Asks Exemption of Railroads from Absenteeism Bill

The House of Representatives committee on naval affairs has been asked by Judge R. V. Fletcher, vice-president of the Association of American Railroads, to amend H.R. 1876 so as to exempt railroads from the provisions which would require all Navy Department contractors to file information with respect to absenteeism. In a letter to Chairman Vinson of the committee, Judge Fletcher stated that according to his understanding of the bill, there was never any intention to make it apply to transportation companies engaged as public carriers in transporting war materials for the Navy.

"The railroads," Judge Fletcher said, "employ more than a million men and I think it is probably safe to say that on the average something like 40,000 employees are ill every day. This is not an undue proportion of the total employed. If the railroads are required to make a report as to each of their employees absent on account of illness, the clerical labor necessary to make these reports will be stupendous."

Supply Trade

Westinghouse Orders Reported Up 85 Per Cent Over 1941

Reflecting the industry's generally accelerated production during the first year of war, the Westinghouse Electric & Manufacturing Co. reported orders received in 1942 amounting to $1,079,636,268, an increase of 85 per cent over 1941. The company's annual report to stockholders also disclosed that billings in 1942 amounted to $487,274,551, an increase of 32 per cent over 1941. Unfilled orders at December 31, 1942, totaled $925,449,652, compared with $419,550,654 at the end of 1941, an increase of 121 per cent.

Net income for 1942 was $17,366,841, a decrease of 25 per cent from the company's 1941 net income of $23,117,510. The Westinghouse tax bill in 1942 was $71,446,548, compared with $61,537,295 in 1941. The number of employees reached 97,423 at the end of last year, with a payroll for the year amounting to $239,634,071. The company said that the year's work surpassed anything it had ever experienced or expected to experience. In recognition of its war production effort, eight Army-Navy "E" awards were received by Westinghouse during the year, covering all its larger plants and divisions. One plant received the citation three times over a period of 18 months.

Alco Sees Large Post-War Need for Locomotives

In drawing attention to post-war opportunities, in its annual report to stockholders, the American Locomotive Company notes that the war is destroying locomotives and will continue to do so, and pointed out that on January 1, 1943, there were in the United States only 41,465 steam, Diesel and electric locomotives, whereas, five years ago, on the first day of 1938, there were 44,394. But of the larger number in 1938, only 34,274 were in service, as compared with 38,770 in 1943. Locomotives which were "stored serviceable" in 1943, numbered only 714, as compared with 3,754 in 1938, and there were 1,980 locomotives awaiting repair on January 1, 1943, as compared with 6,366 on January 1, 1938.

The company's report reveals that on December 31, 1942, unfilled orders for steam and Diesel locomotives were at the capacity of the plants for 1943, and that production was subject only to the limitation of the necessary materials. During the year 1942, the company delivered a greater tonnage of steam locomotives than in any year since 1930, and the Diesel locomotive tonnage, which extended to every type, was the greatest in the company's history. Value of steam locomotives delivered in 1942 was $35,617,986, as compared with $10,148,496 during 1941, and the value of Diesel locomotives delivered was $16,216,692, as compared with $12,956,861 for the preceding year.

Total value of 1942 shipments was $302,492,000, as compared with $73,745,000 for 1941, and unfilled orders at the year-end were $654,000,000, as compared with $253,-

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FUEL

a strategic material

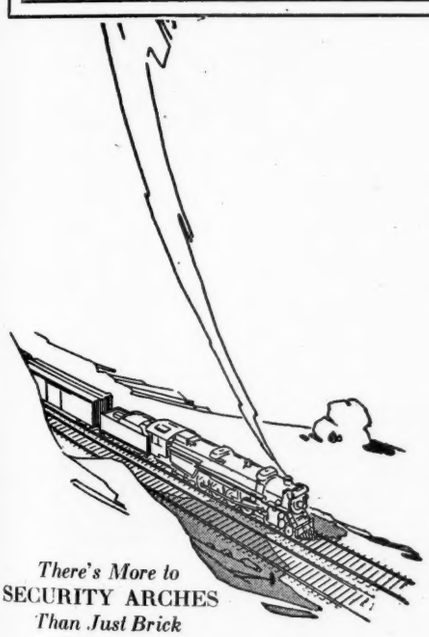
CONSERVED

with Security Sectional Arches

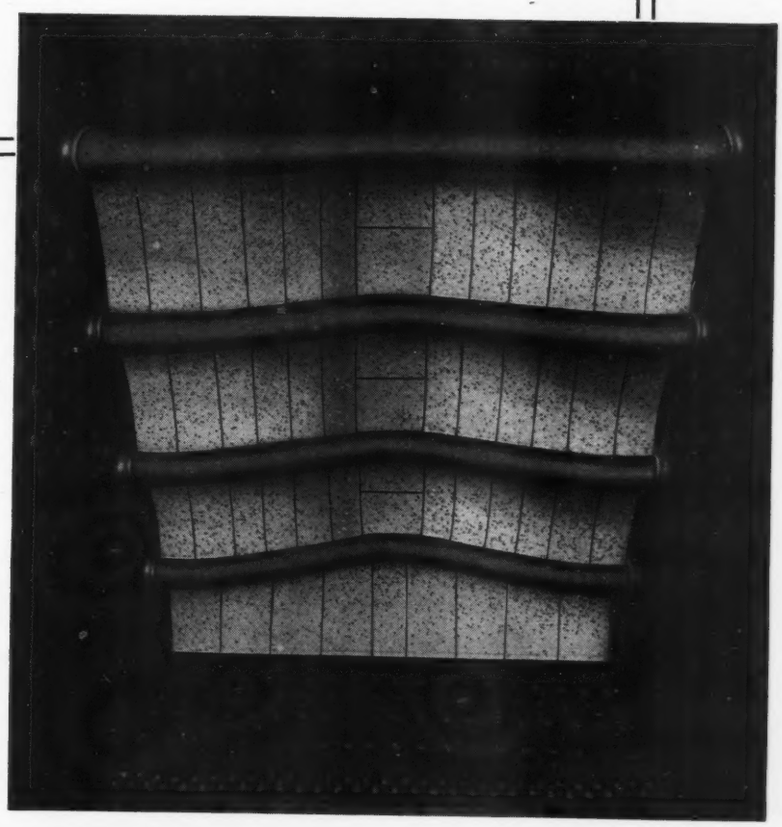
Today, more than ever, fuel is one of our strategic materials. Making every pound of fuel produce the maximum amount of steam not only conserves this strategic material but also the cars required to transport it.

For over 32 years, Security Sectional Arches have been saving fuel on all types of steam locomotives.

But experience has proved that only with a *complete* Arch can maximum fuel economy be realized.

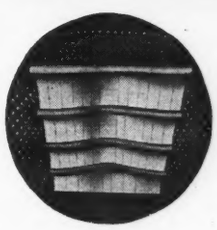


There's More to
SECURITY ARCHES
Than Just Brick



HARBISON-WALKER REFRACTORIES CO.

Refractory Specialists



AMERICAN ARCH CO.
INCORPORATED
60 EAST 42nd STREET, NEW YORK, N. Y.
Locomotive Combustion Specialists

200,000 at December 31, 1941. The company stated that the tremendous volume accomplished in 1942 was by the addition of war products rather than by the replacement of regular products. Approximately 81.3 per cent of total shipments in 1942 reflected war contracts (as compared with 40 per cent in 1941) with the remaining 18.7 per cent made to commercial customers upon War Department allocations. Of total shipments in 1942 33 per cent represented regular products (compared with 70.5 per cent in 1941), and 67 per cent war products (compared with 29.5 per cent in 1941).

	1942	1941
Gross Sales	$302,492,426	$73,745,608
Cost of goods sold (includes administrative, general expenses, etc.)	268,942,401	61,792,034
Depreciation	2,775,419	1,389,727
Profit from operations	$30,774,606	$10,383,847
Other income—Net (dividends, interest, royalties, etc.)	376,987	334,694
Provision for income taxes*	26,000,000	4,089,800
Less post-war credits on excess profits taxes (est.)	2,400,000	.....
Provisions for contingencies and post-war adjustments	2,500,000	1,000,000
Net profit	$5,051,593	$5,628,742
Current assets	$67,842,823	$40,921,590
Current liabilities	42,904,918	20,852,804

* Including excess profits taxes as follows: $24,300,000 in 1942; $700,000 in 1941.

Without preliminary preparation, American Locomotive was called upon by the government in 1942 to build the M-7 tank destroyer (a 105-mm. gun, mounted on a tank chassis and protected by an anti-aircraft machine gun) and the annual report mentions with pride that these M-7's met Rommel's 88's in the battle of Egypt, and won.

A summary of the company's operating results in 1942, and comparison with 1941, appears in the accompanying table.

The net profit for 1942, after full yearly preferred dividend requirements, equaled $3.37 per share of common stock. W. C. Dickerman, chairman, said in the annual report, that 1942 net results are about 60 per cent of what should be a normal income for the company and announced the company's intention to file claim for relief from a portion of its excess profits tax. The arrearage of preferred stock dividends remained the same as at the close of 1941, $15,046,323, or $42.75 per share, and the company is continuing its efforts to remove this accumulation by a rearrangement of the capital structure.

The net increase in investment in plant assets during 1942 amounted to $2,983,000, of which about half was for increased capacity and half for special equipment and facilities and replacements. In addition, plant capacities were augmented by government-owned facilities costing about $13,000,000. The company reports achieving a strong position in the synthetic rubber and high octane gasoline fields.

General American Transportation Corporation

The annual report of the General American Transportation Corporation for 1942 shows a profit, before federal taxes, of $9,655,368, an increase of $1,953,158 over 1941. The net profit after taxes amounted to $3,405,368 in 1942, compared with $3,905,635 in 1941.

In a letter to stockholders, Lester N. Selig, president, stated: "Your company carried on, intensified and extended its important activities in the Government's service. The main division of the company's operations serving basic economic necessities were adapted to and fitted into the war production program. All of the company's fleet of cars, including tank, refrigerator, milk, express and stock cars, were needed solely for our burdened national transportation system. There was great need for its manufacturing facilities for all types of heavy welded steel equipment, for armor plate combat tank hulls, for shells, for airplane landing mats, for invasion barges, for motor buses, for all types of standard and special freight and tank cars. There was vital need for your company's terminals for our Navy at the important ports, not only from a viewpoint of transportation but also for barrelling, drumming and canning of all sorts of fuels, chemicals and lubricants needed in the war effort."

J. D. Holmes has been appointed manager of the newly organized Feedwater Treating division of the **Magnus Chemical Company, Inc.,** Garwood, N. J.

The Paxton-Mitchell Company, Omaha, Neb., was presented with the United States Maritime Commission award of merit for outstanding achievement in war production on March 19.

The McKees Rocks, Pa., plant of the **Pressed Steel Car Company,** has been awarded the Army-Navy "E" for production achievement. Presentation ceremonies will be held at the plant on March 23.

William J. McIlvane has been appointed vice-president in charge of sales and assistant to the president of the **Copperweld Steel Company.** Mr. McIlvane was formerly general manager of sales for Copperweld.

The Lewis Bolt & Nut Company, Minneapolis, Minn., has been awarded the Maritime "M" for outstanding production excellence by the United States Maritime Commission. Formal presentation ceremonies are scheduled to be held during the latter part of this month.

The **Allegheny Ludlum Steel Corporation,** Brackenridge, Pa., has transferred its tool steel sales headquarters from Pittsburgh, Pa., to Dunkirk, N. Y., in order to centralize both sales and manufacturing supervision of tool steels at Dunkirk.

L. H. Corlette, district sales manager at New York for the **a.c.f. Motors Company** and the **J. G. Brill Company,** has been transferred to Philadelphia, Pa., where he will serve as co-ordinator of the war production engineering division of the company. **L. E. Vogt,** of the Intercity Coach division of the company, has been appointed special representative at Philadelphia to follow the company's naval aircraft work, and for other special assignments. **R. H. Sjoberg,** who was transferred to Philadelphia from the company's New York office in March, 1942, has been appointed assistant to the president.

OBITUARY

Richard DeWolfe Brixey, president and treasurer of the Kerite Insulated Wire & Cable Co., Inc., New York, died on March 14. He was 63 years of age.

John W. Fogg, vice-president and general manager of sales of the MacLean-Fogg Lock Nut Company, Chicago, whose death on March 5 was reported in the *Railway Age* of March 13, was born in England and at an early age moved to Canada where he received his education. He entered the service of the Grand Trunk Western and served his apprenticeship at Hamilton, Ont. Later he came to the United States and worked as a locomotive engineer on the Wisconsin Central and then on the Chicago Terminal. When the Terminal was taken over by the Baltimore & Ohio, he became traveling engineer and later master mechanic of the Baltimore & Ohio Chicago Terminal from which position he resigned to become a sales representative of the Boss Nut Company, of which he became manager of the sales department and then general manager. Later he was appointed vice-president of the American Bolt Corporation and in 1925, with the late John A. MacLean, Sr., founded the MacLean-Fogg Lock Nut Company, of which Mr. Fogg has served as vice-president and general manager of sales since its organization. Throughout his career, Mr. Fogg has been active in the work of railway supply associations. For the last 25 years he has been treasurer of the Western Railway Club and in 1937 served also as its executive secretary. For a number of years he has been a director of the Car Department Officers' Association and at the time of his death was president of the Allied Railway Supply Association, Inc., which is associated with the Air Brake

J. W. Fogg

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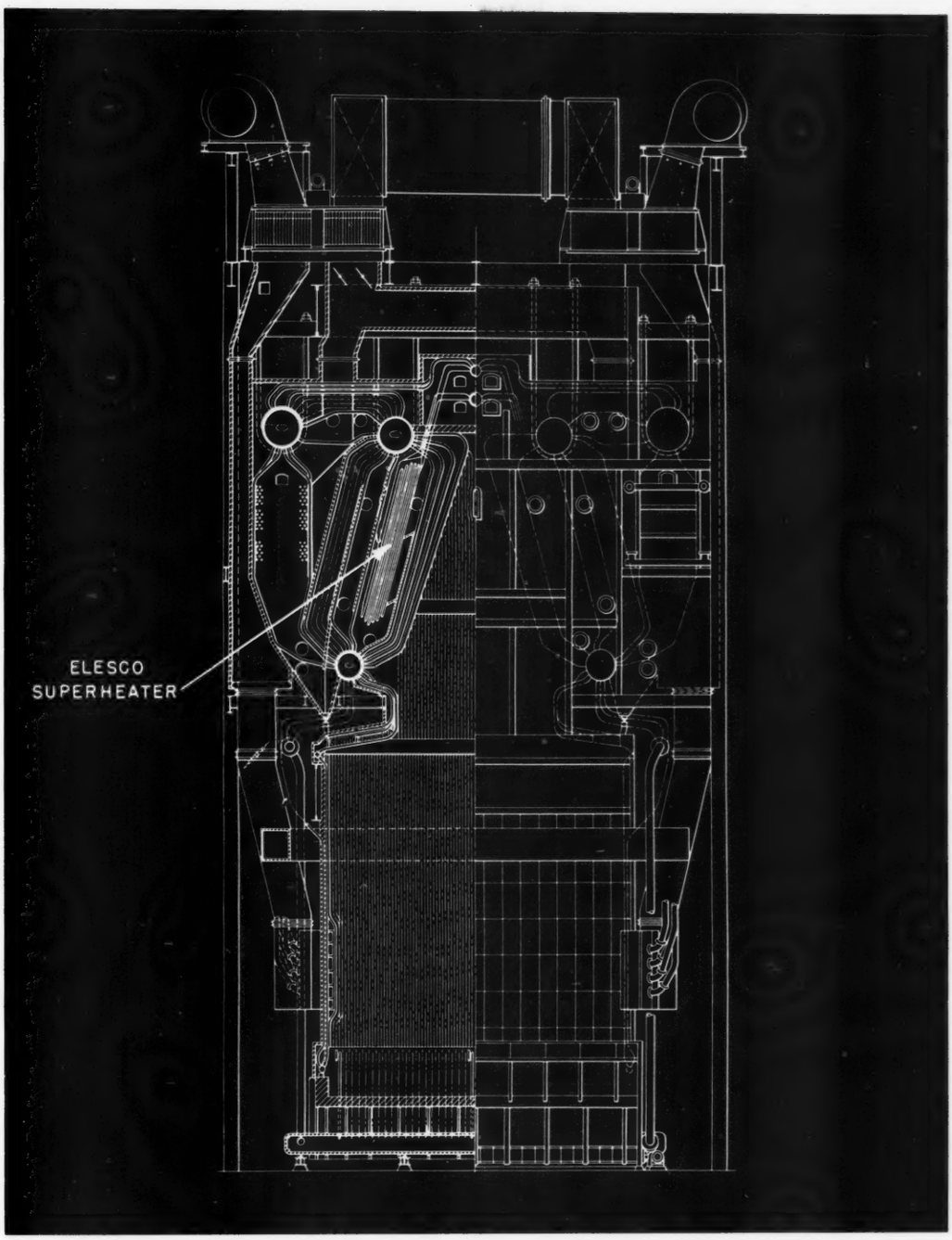

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Association, The Car Department Officers' Association, the International Railway Master Blacksmith's Association, the Locomotive Maintenance Officers' Association, the Master Boiler Makers' Association and the Railway Fuel and Traveling Engineers' Association. He was also a member of the board of the Railway Supply Manufacturers Association.

Max W. Babb, chairman of the board of the **Allis-Chalmers Manufacturing Company,** Milwaukee, Wis., died in that city on March 13. Mr. Babb had been president from 1932 until January 5, 1942, when he became chairman. He was born in Mount Pleasant, Ia., and was appointed attorney for Allis-Chalmers company in 1904. He became vice-president and general attorney of the company during its reorganization in 1913.

Construction

N. Y. Public Service Commission Reports on Grade Eliminations

The annual report of the New York State Public Service Commission for the year 1942, covering grade crossing eliminations outside of New York City, states that despite difficulties in procurement of construction materials due to war priorities 71 crossings were finished during the year at an estimated cost of $13,666,400, and work on four other projects involving 13 crossings was well advanced and will probably be completed in 1943 at an estimated cost of $5,000,000. The report shows that 912 grade crossings have been eliminated under the provisions of the Grade Crossing Elimination Act of 1926, at a cost of $90,527,700, and 578 crossings have been eliminated under the Railroad Law, thus making a total of 1,490. The commission reported other projects now under consideration involving 135 crossings, the elimination of which will cost approximately $35,000,000.

In addition to the above projects, there are a number of grade crossings which the commission ordered eliminated several years ago, but upon which work was not progressed. At hearings in these proceedings held during 1942 for the purpose of conforming the original elimination orders to recent grade crossing legislation, it developed that the physical conditions surrounding some of these crossings had changed. The report states that in some cases double track railroads were reduced to single track and highway and railroad traffic decreased. In other instances safety devices were installed upon orders of the commission and accidents fell off considerably. As elimination of these crossings appears no longer necessary, the commission is holding 15 of these proceedings in abeyance in order to conserve elimination funds.

The report also discusses the recent action of the commission in ordering 44 railroads operating in New York to install additional protection at more than 600 crossings, necessitated by a reversal in the accident trend at grade crossings. During the ten years 1930 to 1940, when hundreds of crossings were eliminated, the number of accidents fell from 924 in 1929 to 358 in 1939. In the same period, the number of persons killed declined from 192 in 1929 to 55 in 1939. With the increased activity and the rising volume of highway and railroad traffic since that time, the report states, the number of accidents increased to 412 in 1940 and the number of killed to 68, and in 1941 there was a further increase. During 1942, there were 98 killed in 510 accidents, and the report declares that the commission's investigation led to the conclusion that the existing safeguards were inadequate and that additional protection was required by the public welfare. Because the War Production Board forbids the use of all materials essential in the prosecution of the war, all installations cannot be undertaken immediately and for this reason the commission's order directs that construction work shall begin not later than January 1, 1944, and that at least 25 per cent of the installations shall be completed in each succeeding six months' period so that all work shall be entirely completed by January 1, 1946.

SOUTHERN.—This road is installing a Whiting electrically-operated, Model B drop table, and constructing five inspection pits and a brick and frame building 91 ft. by 118 ft. at the Finley Yard, Birmingham, Ala. A contract has been awarded the Brice Building Company, Inc., Birmingham, Ala., for constructing the inspection pits and the new building. The other work is being done by the railway company. Total cost of these improvements will be about $99,110.

TENNESSEE CENTRAL.—A contract has been awarded the V. L. Nicholson Company, Nashville, Tenn., for the construction of a 49-ft. by 500-ft. freight depot and office building, replacing a similar building at the same location, which was destroyed by fire on December 4, 1942. The office portion of the building is to be two stories in height and the warehouse one story. Construction is to be brick walls with timber trusses supporting a standard built-up asphalt and felt roof with a gravel top.

Equipment and Supplies

SIGNALING

THE UNION SWITCH & SIGNAL COMPANY has received an order from the Lima Locomotive Works for 15 sets of intermittent inductive automatic train stop equipments for installation on the new "S" class locomotives which are being built for the New York, Chicago & St. Louis. This equipment is similar to that now in service on Nickel Plate locomotives, and is to be operated in the territory between Fort Wayne, Ind., and Chicago.

Financial

CHICAGO, BURLINGTON & QUINCY.—*Promissory Notes.*—Division 4 of the Interstate Commerce Commission has authorized this company to issue $13,267,421 of promissory notes in evidence of, but not in payment for, the unpaid principal of various conditional sale equipment contracts. The transaction is intended to satisfy the commission's revised accounting requirements, effective January 1, and to reduce excess profits tax liabilities.

In approving the application, the division repeated its admonition to the industry, contained in its approval of a Southern Pacific issue which was reported in *Railway Age* of March 13, page 535, to avoid such conditional sale contracts in equipment purchases subsequent to January 1 of this year. Such contracts, the division pointed out, often enabled railroads to avoid making initial down payments and provided for monthly installment payments. "They also prevented our scrutiny of the reasonableness of the prices to be paid for the equipment, the offering of securities representing the unpaid portion of the purchase price through competitive bidding, and our approval of the selling price."

COLORADO & SOUTHERN.—*Court Approves Interest Reduction.*—The United States district court at Denver, Colo., on March 8 is reported to have approved a voluntary plan of adjustment for extension of maturities and modifications of interest charges which the Colorado & Southern is endeavoring to effectuate by proceedings under the McLaughlin act. The plan was previously approved by the Interstate Commerce Commission, the Reconstruction Finance Corporation and the stockholders.

ERIE.—*Refinancing.*—Denial by Division 4 of the Interstate Commerce Commission of this company's application for authority to issue $14,000,000 of first consolidated mortgage 3½ per cent bonds, series D, to be sold to finance the purchase of a 4 per cent note of like amount held by the Reconstruction Finance Corporation, was reported in *Railway Age* of March 13, page 525. The history of the transaction has been reviewed in this column in the issues of February 13 and 20.

Disregarding the claim made by objectors to the application that the Erie should have offered the issue to the highest bidder rather than arranging privately for Morgan Stanley & Company to underwrite it, the division found that the company's treasury should not be reimbursed entirely for the purchase of the R.F.C. note, and that the cost to maturity of the arrangement entered into was excessive in view of the benefits expected.

The effect of the proposed issue on the road's annual charges is commented on in the report thus:

> The evidence is in substantial agreement that there will be some slight saving from the proposed financing, provided consideration is given to an assumed reduction in the excess profit taxes which may be assessed on applicant's earnings for the year 1943, and the possibility of such taxes in all subsequent years is ignored. However, if applicant's earnings subsequent to 1943 should

be subject to an excess profit levy, then the asserted saving would become a loss.

In giving consideration to the record as presented, we cannot undertake to indulge in speculation as to the effect of possible future taxes upon the proposed issue, which would commit us to the policy of approving an issue of securities merely because the expenses incurred in connection therewith would reduce the amount of applicant's lawful taxes. On reflection, we are not convinced that a speculative reduction in taxes is a satisfactory basis upon which to give our approval of this security issue.

The total cost to maturity of the R.F.C. note would be $19,600,000, the report adds, whereas the total cost of the proposed new issue would be $21,956,901, or an increase of $2,356,901. To offset this, there would not be any current reduction in applicant's funded debt, and the added expenditures resulting from paying the R.F.C. a premium in order to retire the note and from selling the proposed issue at a discount "are not warranted by an extension of only five years in the debt and the reduction in coupon interest rate from 4 to 3½ per cent."

The division was impressed by the contention made for the Erie at the hearing on the application that its directors, having entered into an agreement with Morgan Stanley & Company to sell the proposed bonds at 96, were obligated to carry out the arrangement even though they later learned that a better price might have been obtained elsewhere. The price accepted by the directors, the division found, was "a good price" at the time the agreement was made.

If the adequacy and fairness of the price were the only things to be considered we could, perhaps, approve the application. We are not convinced, however, that the probable cost to the applicant of changing creditors is justified, nor that if the Reconstruction Finance Corporation loan is paid off the entire $14,000,000 debt should be recreated. The evidence, we think, clearly shows that the costs immediately related to the proposed transactions will exceed any direct benefits therefrom, and it is our opinion that this fact outweighs the other considerations deemed by the applicant . . . to be advantages resulting from the transaction. . . . The present opportunity to reduce debt should be utilized. While the reduction in cash incident to retiring the notes may justify replenishing the treasury of the company, it is not necessary to do so to the extent proposed. Furthermore, it seems somewhat doubtful if it is necessary to do so at all on any long-term basis. On that point, however, we need reach no conclusion at this time.

GALVESTON, HOUSTON & HENDERSON.—*Extension of R. F. C. Loan.*—This company, controlled by the Missouri-Kansas-Texas and the International-Great Northern (Missouri Pacific Lines) through ownership of its capital stock, has applied to the Interstate Commerce Commission for authority to extend the date of maturity of a loan of $1,822,000 from the Reconstruction Finance Corporation for five years from June 22, 1943.

GULF, MOBILE & OHIO.—*Annual Report.*—The annual report of this road shows a net income, after interest and other charges, of $4,030,216, compared with net income of $2,013,908 in 1941. Selected items from the income statement follow:

	1942	Increase or Decrease Compared with 1941
Average Mileage Operated	1,968.91	–3.72
RAILWAY OPERATING REVENUES	$33,173,151	+$9,525,305
Maintenance of way and structures*	4,509,984	+1,132,492
Maintenance of equipment*	4,968,039	+1,246,937
Transportation	8,938,161	+2,103,930
TOTAL OPERATING EXPENSES	20,674,982	+4,548,459
Operating ratio	62.32	–5.87
NET REVENUE FROM OPERATIONS	12,498,169	+4,976,846
Railway tax accruals	4,651,400	+2,156,045
RAILWAY OPERATING INCOME	7,846,769	+2,820,801
Equipment rents—Net—Dr.	1,658,905	+811,691
Joint facility rents—Net—Dr.	539,196	+21,902
NET RAILWAY OPERATING INCOME	5,648,668	+1,987,208
Total other income	167,262	+35,770
TOTAL INCOME	5,815,930	+2,022,978
Rent for leased roads and equipment†	171,256	–1,349
TOTAL FIXED CHARGES	1,417,336	+6,626
NET INCOME	$4,030,216	+$2,016,308

* Includes $252,970.18 Amortization of Defense Projects in excess of ordinary depreciation charges.

† Excludes inter-company transactions with N.O.G.N. Railway Company.

MAINE CENTRAL.—*Offer to Portland & Ogdensburg.*—On March 11, stockholders of the Portland & Ogdensburg, which is operated under lease by the Maine Central, were offered by the Maine Central an exchange of Portland & Ogdensburg first mortgage 4½ per cent bonds, due November 1, 1953, guaranteed as to principal and interest by the Maine Central, for their capital stock at the rate of one $1,000 bond for each 40 shares of stock. The offer was conditioned on the acceptance of the plan by at least 85 per cent of the stock outstanding and that such stock must be deposited at the First National Bank of Portland, Me., by May 1. The bonds which are offered in exchange are now held in the treasury of the Maine Central.

According to Edward W. Cox, president of the P. & O., the Maine Central's offer stated that acceptance would "result in Portland & Ogdensburg stockholders not only receiving a more fully protected security but they will receive protection against further inroads on their dividends which would result in the event of any future increase in federal taxes upon the income of the Portland & Ogdensburg. Not the least of the benefits of the proposed exchange is that stockholders will acquire a security having a fixed maturity little more than 10 years away." Mr. Cox said that the P. & O.'s directors had expressed "the judgment that the offer of the Maine Central is highly favorable to the stockholders and recommending their early acceptance. The increase in federal corporate income taxes in recent years has resulted in reduction of the dividends on the Portland & Ogdensburg stock, the dividend in 1942 being $1.20 per share. Any increase in the present federal tax rate of 40 per cent would further reduce the dividends. By accepting the offer of the Maine Central, the stockholders will be more certain of stable annual income equivalent to $1.12½ per share. In other words, the holder of 40 shares of stock will receive a $1,000 bond yielding an annual income of $45."

If the exchange is consummated, the Maine Central reportedly intends to vote its holdings of the P. & O. to convey all its property to the Maine Central for a consideration and thereafter to dissolve the leased line.

NEW YORK, CHICAGO & ST. LOUIS.—*Equipment Trust.*—Division 4 of the Interstate Commerce Commission has authorized this company to assume liability for $1,230,000 serial equipment trust certificates, bearing interest at 2¼ per cent and sold at 99.0799 to Salomon Brothers & Hutzler and others. (See *Railway Age* of February 27, page 450.)

PEORIA & EASTERN.—*Annual Report.*—The 1942 annual report of this road shows a net income, after interest and other charges, of $750,902, compared with a net income of $496,106 in 1941. Selected items from the income statement follow:

	1942	Increase or Decrease Compared with 1941
Average Mileage Operated	211.44	.....
RAILWAY OPERATING REVENUES	$4,156,521	+$939,340
Maintenance of way and structures	535,595	+147,058
Maintenance of equipment	611,021	+56,063
Transportation	1,477,739	+201,579
TOTAL OPERATING EXPENSES	2,804,513	+421,847
Operating ratio	67.47	–6.59
NET REVENUE FROM OPERATIONS	1,352,008	+517,493
Railway tax accruals	511,771	+250,471
Railway operating income	840,237	+267,023
Equipment rents, Net Dr.	59,043	+8,289
Joint facility rents, Net Dr.	64,781	+5,157
NET RAILWAY OPERATING INCOME	716,412	+253,577
Other income	41,335	–400
GROSS INCOME	757,748	+253,177
Miscellaneous rents	6,792	–1,588
TOTAL DEDUCTIONS FROM GROSS INCOME	6,846	–1,619
NET INCOME	$750,902	+$254,796

PITTSBURGH, LISBON & WESTERN.—*Acquisition.*—In an order accompanying a second supplemental report in Finance Docket 13496 the Interstate Commerce Commission, with Commissioner Patterson dissenting, has authorized this company to purchase and operate the line of the Youngstown & Suburban from Signal, Ohio, to Columbiana, 6.5 miles, and to issue in payment therefor an unsecured promissory note in the amount of $378,000.

As reported in *Railway Age* of October 24, 1942, page 677, this transaction previously had been approved conditionally by the commission, but the present order revoked the condition, namely, that the applicant first arrange to acquire a private spur track of the Pittsburgh Coal Company from Smith's Ferry, Pa., to Negley, Ohio, 12.32 miles. The application had been opposed by the Pennsylvania, Baltimore & Ohio, and Pittsburgh & Lake Erie, and these roads objected to the purchase agreement made between the applicant and the Pittsburgh Coal Company to meet the commission's condition on the ground that this arrangement did not meet the requirements of section 1(18) of the Interstate Commerce Act concerning applications for au-

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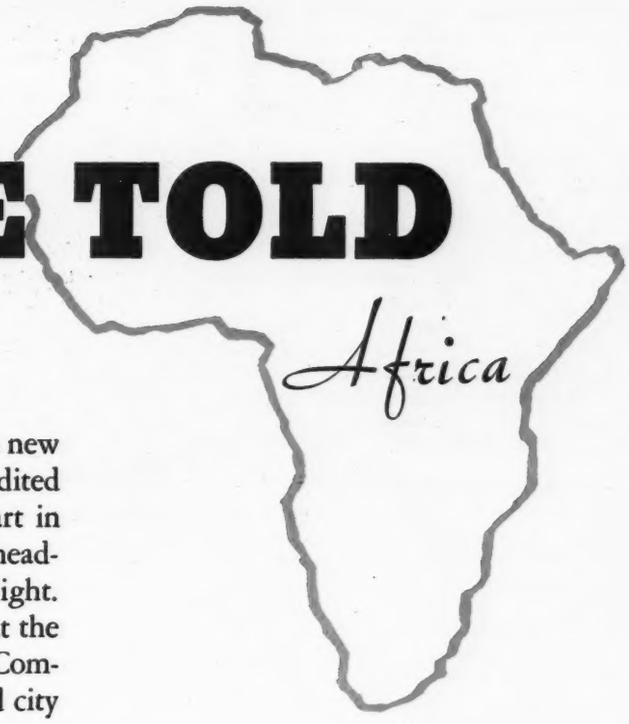

SCHENECTADY—home of the Army's new wonder weapon, the Tank Killer credited with having played an important part in shattering Rommel's Afrika Corps, forcing it into headlong flight in Libya – is again in the national spotlight. Even though the new weapon was in production at the Schenectady plant of the American Locomotive Company for months, and thousands of employees and city residents knew what it was that was being built, not a word about it leaked out to the outside world. As a result, in newspapers throughout the country and on national radio programs, the men at the plant have received high praise and Schenectady itself has become known as "The City That Kept a Secret".

Officially called the M-7, this new weapon was invented when American Army observers with the British Army in Egypt returned to this country with reports of equipment that was needed to stop the Nazi tanks. Army engineers built a wooden model of the weapon they thought would do that, and in March, 1942, American Locomotive engineers were called upon to produce test models. These were built within a few weeks and were successfully tried out by the Army at the Aberdeen Proving Grounds. Since last June M-7's have been rolling out of Schenectady bound for the battle front – *America's answer to Rommel.*

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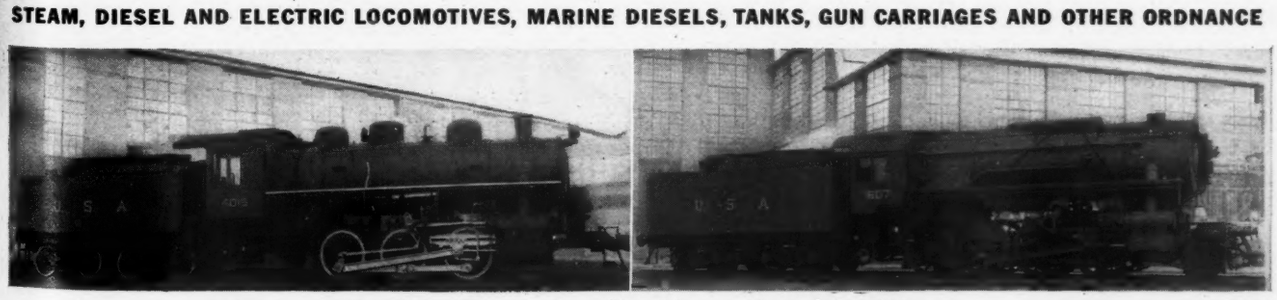

Also many Alco Locomotives have enlisted in our Armed Services

thority to purchase and operate properties. These roads objected also to a provision in the purchase agreement for the establishment of interstate switching rates in connection with Y. & S. at Youngstown, Ohio.

In revoking the condition, the commission found that the applicant's purchase agreement injected new issues into the proceeding which would require considerable time to determine, while further suspension of the "public benefits" existing in the acquisition of the Y. & S. was found to be undesirable. This decision, the report points out, was without prejudice to applications to acquire the coal company's line or to seek an adjustment of switching rates at Youngstown, if the applicant should desire to proceed with them.

SEABOARD AIR LINE-GAINESVILLE MIDLAND.—*Acquisition.*—Four applications embodying a proposal whereby these roads would acquire joint use of the Athens Terminal Company's 1.41 miles of yard and switching tracks at Athens, Ga., have been filed with the Interstate Commerce Commission. Permission to acquire the use of the facilities by lease is sought in a joint S.A.L.-G.M. application, while each of these roads also filed a separate application for authority to assume obligation for interest on $200,000 of Athens Terminal bonds which matured July 1, 1937, and which are to be extended under a bondholders agreement. Approval of the latter as well as of the lease arrangements it proposes to make with S.A.L. and G.M. is sought in the fourth application, filed by Athens.

STOCKYARDS. — *Control and Leases.* — Authority has been granted this company by Division 4 of the Interstate Commerce Commission to lease certain loading and unloading facilities of the Saint Paul Union Stockyards Company at St. Paul, Minn., in order that the latter company may divest itself of common carrier status under the commission's Ex Parte No. 127 findings. This transaction also will simplify accounting procedures and reduce the stockyards company's tax liability, the division's report points out. At the same time the railway company was authorized to issue and sell at par to the stockyards company 50 shares of common stock of $100 par value to provide working capital.

Division 4 on the same day authorized the United Stockyards Corporation, a holding company, to acquire control, through direct or indirect ownership of stock, of this company, and also of the Milwaukee Stock Yards Company, Peninsula Terminal Company, Saint Paul Union Stockyards Company, Sioux City Stock Yards Company, Sioux City Terminal Railway Company, Sioux Falls Stock Yards Company, Union Stockyards Company of Fargo and others, and authorized the Peninsula Terminal Company to lease certain loading and unloading facilities of the Portland (Ore.) Union Stock Yards Company.

TENNESSEE. — *Equipment Notes.* — This company has applied to the Interstate Commerce Commission for authority to issue $30,000 in serial 4 per cent equipment notes maturing in equal installments over 15 years, to be used in the purchase of certain used equipment.

Average Prices Stocks and Bonds

	Mar. 16	Last week	Last year
Average price of 20 representative railway stocks..	34.12	33.82	26.74
Average price of 20 representative railway bonds..	74.85	74.44	66.65

Dividends Declared

Maine Central.—Prior Preference, $4.50, payable April 1 to holders of record March 25. (Pays dividends in arrears up to April 1, 1940.)

New London Northern.—$1.75, quarterly, payable April 1 to holders of record March 15.

Spokane International.—(Initial) $2.50, payable April 1 to holders of record March 22.

Wheeling & Lake Erie.—75¢, payable April 1 to holders of record March 24.

Abandonments

ATCHISON, TOPEKA & SANTA FE.—Division 4 of the Interstate Commerce Commission has authorized this company and the New Mexico Central, lessor, to abandon operation of and to abandon, respectively, a portion of a branch from Moriarty, N. M., to Stanley, 11.6 miles.

CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA.—Division 4 of the Interstate Commerce Commission has authorized this road to abandon its branch from Cornell, Wis., to Holcombe, 4.68 miles.

CHICAGO, BURLINGTON & QUINCY.—This company has applied to the Interstate Commerce Commission for authority to abandon its branch line from Tecumseh Junction, Neb., to Rockford, 24.07 miles, and to abandon operation under trackage rights on the Chicago, Rock Island & Pacific from Rockford to Beatrice, 8.41 miles.

CHICAGO, BURLINGTON & QUINCY.—An order of the Interstate Commerce Commission in Finance Docket 13737 has revoked and set aside the certificate of convenience and necessity issued January 13 by Division 4 of the commission authorizing this company to abandon its branch from Sedan, Iowa, to Moulton, 4.83 miles, and to abandon operation under trackage rights over the Wabash from Moulton to Bloomfield, 14.14 miles (see *Railway Age* of January 23, page 265). The order reopens the proceeding for further hearing at a time and place to be designated later.

READING.—This road and the Catasauqua & Fogelsville have filed with the Interstate Commerce Commission a joint application for authority, respectively, to abandon operation of and abandon the latter's Geham branch between Wetzel Station, Pa., and Seisholtzville, 1.04 miles.

SANTA FE NORTHWESTERN.—Division 4 of the Interstate Commerce Commission has authorized this road to abandon its entire line from Bernalillo, N. M., to West Bernalillo, 1.2 miles.

TEXAS & PACIFIC.—Division 4 of the Interstate Commerce Commission has authorized this company to abandon a portion of a branch from Ville Platte, La., to Eunice, about 15 miles.

Railway Officers

EXECUTIVE

P. F. Watzek, general manager of the Ashley, Drew & Northern, has been elected vice-president and general manager, with headquarters as before at Crossett, Ark.

C. D. Sipe, assistant to the vice-president of the Alton, has been appointed assistant to the chief executive officer, with headquarters as before at Chicago.

Harry J. McDonald, whose appointment to assistant to the president of the New York, Chicago & St. Louis, (Nickel Plate) with headquarters at Cleveland, Ohio, was reported in the *Railway Age* of March 6, was born at Childsburg, Ky., on October 22, 1890, and attended the Kentucky State University and the U. S. Naval Academy. He entered railroad service in October, 1910, as a clerk of the Chesapeake & Ohio at Lexington, Ky., and on October 22, 1916, was promoted to fuel inspector with headquarters at Huntington, W. Va., subsequently serving as allotment

H. J. McDonald

clerk and chief clerk before being advanced to assistant superintendent with the same headquarters on August 1, 1923. On March 21, 1932, Mr. McDonald left railroad service, and on January 1, 1934, he returned to the C. & O. as chief clerk to the assistant to the president, with headquarters at Cleveland. On July 22, 1939, he was promoted to assistant to the president, holding that position until his new appointment with the Nickel Plate, effective February 16.

A. T. Lowmaster, vice-president and general manager of the Chesapeake & Ohio, with headquarters at Richmond, Va., has been elected executive vice-president.

Frank D. Beale, vice-president and assistant to the president of the Chesapeake & Ohio, the Pere Marquette, and the New York, Chicago & St. Louis (Nickel Plate), has been elected vice-president in charge of operations of the Nickel Plate, with headquarters as before at Cleveland, Ohio.

News Department continued on next left-hand page

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FINANCIAL, LEGAL AND ACCOUNTING

B. D. Anthony has been appointed real estate and tax agent of the Delaware & Hudson, with headquarters at Albany, N. Y.

H. L. Stuntz, assistant comptroller of the Alton, has been promoted to comptroller, with headquarters as before at Chicago.

G. W. Beeman, special accountant of the general auditor's office of the Union Pacific, has been promoted to auditor of miscellaneous accounts, with headquarters as before at Omaha, Neb., succeeding **J. K. Finlayson,** who has retired.

W. M. Campbell has been appointed commerce attorney of the Denver & Rio Grande Western, with headquarters at Denver, Colo., succeeding **John A. Gallaher,** whose death was reported in the *Railway Age* of January 23.

Lucius E. Burch, Jr., assistant general attorney of the Southern Lines of the Illinois Central, has been promoted to general attorney, with headquarters as before at Memphis, Tenn., replacing **Clinton H. McKay,** whose death was reported in the *Railway Age* of March 6.

TRAFFIC

W. F. Adams and **K. S. Price** have been appointed assistants to the general freight agent (divisions), of the Chesapeake & Ohio, with headquarters at Richmond, Va.

E. C. Patton, division freight agent of the Louisville & Nashville, with headquarters at Lexington, Ky., has been transferred to Birmingham, Ala., succeeding **J. C. Willis,** whose death was reported in the *Railway Age* of February 13.

Leroy J. Olsen, chief clerk of the general freight agent of the Chicago, Rock Island & Pacific, has been promoted to assistant general freight agent, with headquarters as before at Chicago, a newly-created position.

L. A. Heatherman, freight traffic agent of the Nashville, Chattanooga & St. Louis, with headquarters at Louisville, Ky., has been promoted to general agent, with headquarters at Washington, D. C., succeeding **H. E. Sehler,** who has been granted leave of absence to enter military service.

Roy A. Pearce, whose promotion to passenger traffic manager of the Alton, with headquarters at Chicago, was reported in the *Railway Age* of March 13, was born at Pleasant Hill, Ill., on September 30, 1890, and entered railway service on June 1, 1906, as telegraph operator-agent of the Chicago & Alton, (now the Alton) serving at various points on the road until 1910 when he was appointed station agent at Kansas City, Mo. On March 1, 1914, he was promoted to city passenger agent, with headquarters at St. Louis, Mo. In July, 1920, he was transferred to Chicago as special passenger representative, and two years later he was promoted to general agent, passenger department, with the same headquarters, being advanced to general passenger agent in 1929. On February 1, 1933, when the Baltimore & Ohio and the Alton managements were consolidated, Mr. Pearce was transferred to St.

R. A. Pearce

Louis and was placed in charge of operations of both roads in that territory. He held that position until his new appointment, effective March 16.

Harold R. Sampson, general passenger agent of the Chicago & Eastern Illinois, has been promoted to passenger traffic manager, with headquarters as before at Chicago, a newly-created position. Mr. Sampson was born at Washington, Ill., on December 6, 1897, and was graduated in 1922 from James Milliken University, Decatur, Ill. He entered railroad service in June, 1922, as a stenographer in the engineering department of the Pennsylvania at Indianapolis, Ind., leaving after a few months to accept a similar position in the Illinois Central's passenger department at Chicago. In October, 1923, Mr. Sampson became an I. C. passenger representative

H. R. Sampson

at Minneapolis, Minn., and was ticket agent at Sioux City, Iowa, from March until May, 1924. In the latter month he was transferred back to Chicago where he served as general clerk in the general passenger office until May, 1927. Mr. Sampson then left the I. C. to become traveling passenger agent for the C. & E. I., a position which he retained until November, 1935, except for 1929-1931 when he was manager of that road's Chicago travel bureau. In November, 1935, Mr. Sampson became general agent, passenger department, and in July, 1938, he was promoted to general passenger agent. In June, 1942, he was given a six-month leave of absence to become assistant director of the division of traffic movement of the Office of Defense Transportation. He returned to the C. & E. I. last January.

A. L. Jackson, passenger traffic agent of the Baltimore & Ohio and the Alton, with headquarters at St. Louis, Mo., has been promoted to general passenger agent of the Alton, with headquarters at Chicago, a newly-created position. Mr. Jackson was born at St. Louis on August 14, 1894, and attended the University of Texas. He entered railroad service in February, 1910, as an office boy of the Chicago & Alton (now the Alton) at St. Louis, subsequently serving as clerk, assistant ticket agent and city ticket agent. From 1917 to 1920 Mr. Jackson served in the U. S. Army and in

A. L. Jackson

the latter year he returned to the Alton as district passenger agent at Little Rock, Ark., serving in the same capacity for the Alton and the Baltimore & Ohio when the two roads consolidated their managements in 1933. In 1936 he was transferred to St. Louis and shortly thereafter promoted to the position he held at the time of his new appointment, effective March 16.

Andrew Scott Anderson, district baggage and mail agent of the Canadian National, has been appointed general baggage and mail agent of the Central region of the Canadian National and the Grand Trunk Western lines, with headquarters as before at Toronto, Ont., succeeding **L. L. Grabill,** who has retired after more than 45 years of continuous service.

Edward B. Robb, special traffic representative of the Canadian National at Halifax, N. S., has been appointed assistant general freight agent of the Atlantic region, with headquarters at Moncton, N. B. **Alf Green,** division freight agent at Saint John, N. B., has been transferred to Halifax, and **David B. Bishop,** division freight

News Department continued on next left-hand page

EXHIBIT 1943 NATIONAL RAILWAY APPLIANCES ASSN. IN PRINT

Reliance **HY-CROME** *Spring Washers*

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MEMBER 1943 NATIONAL RAILWAY APPLIANCES ASSN.

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and district passenger agent at Charlottetown, P. E. I., has been appointed division freight agent at Saint John, while **George T. Stone,** traveling freight agent, has been appointed division freight and district passenger agent at Charlottetown. **Waldo C. Moir,** traveling passenger agent, has been appointed district passenger agent at Halifax.

Roy C. Davidson, assistant freight traffic manager of the Chicago, Rock Island & Pacific, has been promoted to freight traffic manager, with headquarters as before at Chicago, a newly-created position. Mr. Davidson was born at Joliet, Ill., on March 13, 1887, and entered railway service on August 1, 1904, as a clerk of the tariff bureau of the Rock Island at Chicago. One year later he was appointed a tariff clerk and in 1910 was advanced to assistant general freight agent with the same headquarters. In 1915 Mr. Davidson became assistant chief clerk to the freight traffic manager and seven years later he

R. C. Davidson

was promoted to chief clerk to the vice-president and freight traffic manager. In 1927 he was advanced to general freight agent, rates, and in September, 1935, was promoted to the position he held at the time of his new appointment, effective March 15.

OPERATING

W. B. Anderson, assistant general manager and auditor of the Ashley, Drew & Northern, has been promoted to manager and auditor, with headquarters as before at Crossett, Ark.

Charles J. Geyer, engineer, maintenance of way, of the Chesapeake & Ohio, has been promoted to general manager, with headquarters as before at Richmond, succeeding **A. T. Lowmaster,** whose promotion to executive vice-president is announced elsewhere in these columns.

J. A. Jakubec, chief clerk to the assistant general manager of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Chicago, has been promoted to trainmaster of the Iowa and Southern Minnesota division, with headquarters at Austin, Minn., succeeding **P. J. Weiland,** who has been transferred to the Superior division. **J. M. Moudry,** trainmaster of the Superior division, has been transferred to the La Crosse and River division, succeeding **J. J. Dombrowski,** who has resigned.

William W. Judson, general manager of the Northern Pacific lines East of Livingston, Mont., who has been on leave of absence since November serving as chief of the Public Services branch, Program division of the War Production Board, has resumed his duties with the Northern Pacific, at St. Paul, Minn. **J. A. Mercer,** formerly superintendent of the Fargo division who served as general manager during Mr. Judson's absence, will remain at St. Paul as assistant general manager of the Eastern district.

ENGINEERING & SIGNALING

Morris D. Carothers, division engineer of the Eastern division of the Alton, with headquarters at Bloomington, Ill., has been promoted to chief engineer, with headquarters at Chicago, succeeding **Armstrong Chinn,** whose promotion to general manager was reported in the *Railway Age* of March 13. **Earl M. Unzicker,** assistant division engineer of the Eastern division of the Alton, has been promoted to division engineer of that division, replacing Mr. Carothers and **Fred E. Wall,** acting assistant division engineer of the Western division, has been promoted to assistant division engineer of the Eastern division, with headquarters as before at Bloomington, relieving Mr. Unzicker. **W. H. Stumm,** instrumentman of the Eastern division, has been advanced to acting assistant division engineer of the Western division, succeeding Mr. Wall.

MECHANICAL

Alfred E. Calkins, assistant to the general superintendent, motive power and rolling stock of the New York Central at New York, has retired after 51 years of service.

J. M. Vance, has been appointed master mechanic of the Kentucky & Indiana Terminal, with headquarters at Louisville, Ky., succeeding **R. P. O'Neil,** who has resigned.

A. C. Howard, assistant mechanical engineer of the Pere Marquette, with headquarters at Detroit, Mich., has been transferred to the staff of the chief mechanical officer, with headquarters at Cleveland, Ohio.

Clarence Jepsen, Diesel maintainer of the Chicago, Burlington & Quincy, has been promoted to mechanical inspector in charge of passenger motor cars and Diesel equipment of the Eastern district, with headquarters as before at Chicago.

Edwin J. Kueck, whose promotion to assistant superintendent of motive power of the St. Louis Southwestern, with headquarters at Pine Bluff, Ark., was reported in the *Railway Age* of March 13, was born at Sedalia, Mo., on June 26, 1892, and graduated from the Washington university (St. Louis, Mo.). He entered railroad service on September 6, 1907, as a messenger of the Missouri Pacific, and in 1909 he became a machinist of the Atchison, Topeka & Santa Fe at Argentine, Kan. In 1914 Mr. Kueck returned to the Missouri Pacific as a draftsman, with headquarters at St. Louis, Mo., and three years later he became a draftsman of the St. Louis

Edwin J. Kueck

Southwestern at Pine Bluff. Mr. Kueck subsequently served as chief draftsman and acting mechanical engineer, with the same headquarters, holding the latter position until his new appointment, effective February 1.

L. E. Quirin, general foreman of the Chicago, Burlington & Quincy at West Burlington, Iowa, has been promoted to master mechanic of the Chicago Terminal, with headquarters at Chicago, a newly created position.

W. F. Freutel, general electrical inspector of the Chesapeake & Ohio, has been appointed assistant electrical engineer, effective March 16, 1943, with headquarters at Richmond, Va. The position of general electrical inspector has been abolished.

OBITUARY

Charles E. Smith, safety and fire prevention agent of the New York, Chicago & St. Louis, (Nickel Plate) with headquarters at Cleveland, Ohio, died recently.

George E. White, who retired in 1937 as assistant freight traffic manager of the Chicago, Rock Island & Pacific, with headquarters at Chicago, died at his home in Wilmette, Ill., on March 15. Mr. White was born at Chicago in 1866, and entered railway service in 1883 as an office boy of the Rock Island. Within a short time he was promoted to clerk of the general freight office at Chicago, subsequently working as chief of the tariff bureau and assistant commercial agent until 1911 when he was promoted to assistant general freight agent with the same headquarters. In January, 1924, Mr. White was advanced to general freight agent, and on October 1, 1935, he was promoted to the position he held at the time of his retirement.